

Draft Environmental Impact Statement General Management Plan

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Draft Environmental Impact Statement

General Management Plan

CHIRICAHUA

National Monument • Arizona


SUMMARY:

The general management plan would guide the management of the Chiricahua National Monument for the next 12 to 15 years. Three alternatives were considered—a no-action and two action alternatives. The proposed general management plan would retain most existing visitor experiences and would construct a new headquarters/visitor orientation facility/administrative area just outside park boundaries. Impacts to the visitor experience, cultural resources, long-term health of natural ecosystems, economic contribution to gateway communities, adjacent landowners, and operational efficiency are assessed. No cumulative effects were identified.

Direct questions and send comments to:

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United States Department of the Interior • National Park Service • Chiricahua National Monument



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PURPOSE OF AND NEED FOR THE PLAN

INTRODUCTION

Chiricahua National Monument (NM) is in southeast Arizona and contains 11,985 acres, of which 10,290 acres are designated wilderness (see region map). The monument preserves natural rock formations known as "the Pinnacles" in perpetuity and makes this valuable part of America's heritage available to thousands of visitors annually for their enjoyment, understanding, education, and appreciation.

PURPOSE OF THE PLAN

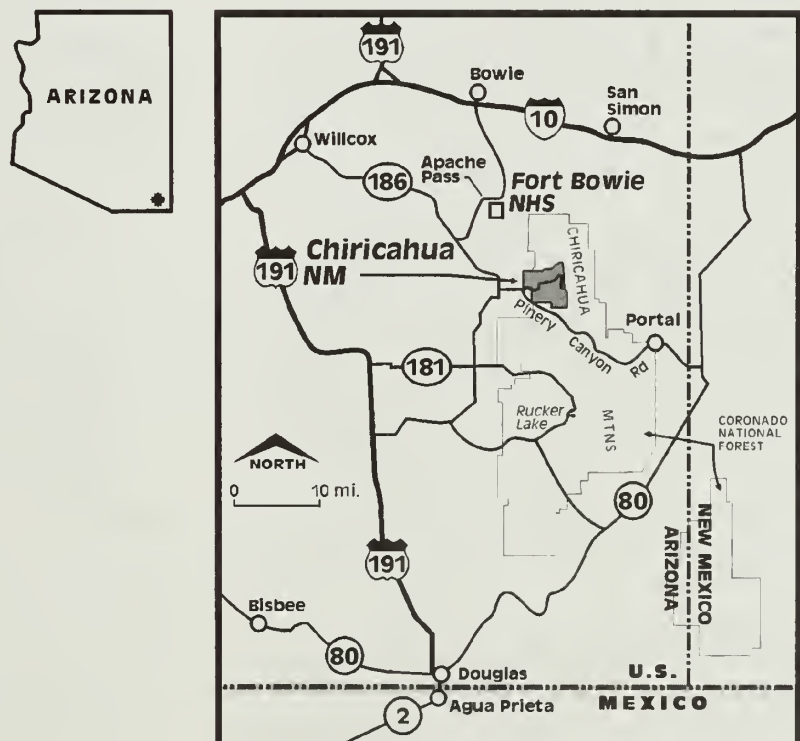
Because of the special historical importance and setting of Chiricahua National Monument, a comprehensive general management plan (GMP) needs to be in place to manage resources and guide development and use. This will be the first comprehensive development planning for Chiricahua to deal with the variety of issues facing the national monument. It is the National Park Service's legal responsibility to prepare the GMP with public involvement to conform with the National Parks and Recreation Act of 1978, which requires this plan for all national park units. The purpose of the GMP is to decide what resource conditions and visitor experiences should ultimately be achieved and maintained throughout the park.

NEED FOR THE PLAN

Chiricahua National Monument was established by Presidential Proclamation No. 1692 (43 Stat 1946) on April 18, 1924, as part of the Coronado National Forest, for the purpose of protecting the area's scenic and geologic resources. Responsibility for management

was vested in the U.S. Forest Service (USFS). The Reorganization of 1933 (August 10, 1933) transferred the monument to National Park Service (NPS) administration. Presidential Proclamation No. 228 (52 Stat 1551) on June 10, 1938, enlarged the monument by 6,407 acres. Approximately 95% (9,440 acres) were designated as wilderness on October 20, 1976 (PL 94-567, 90 Stat 2692), with 2 acres as potential wilderness. The National Parks and Recreation Act of 1978 (PL 96-625, 92 Stat 3473) expanded the boundary with the acquisition of the 440-acre Faraway Ranch, bringing the total to 11,085. The Arizona Wilderness bill of August 28, 1984 (PL 98-406, 98 Stat 1491), added Bonita Creek watershed and stipulated that it be administered as wilderness. This brought the monument to 11,985 acres, 10,290 of which (86% of the park) were wilderness.

The Chiricahua Mountains also comprise a unique island-type biotic community



separated from similar islands by grasslands and deserts of varying widths. Because of the isolation of mountain habitats, some forms of plants and animals became locally distinctive, like *Apacheria cochisensis*, Apache Fox Squirrel, Arizona Cypress, Apache Pine, and Chihuahuan Pine. Other species are of interest because of their threatened or peripheral status, like jaguar, jaguarundi, peregrine falcon, elegant trogon, violet-crowned humming bird, and blue-throated hummingbird.

Cultural resources are richly diverse, including evidence of occupation by prehistoric people of the Cochise and Athabascan cultures, use of the area by Apaches, occupation by the U.S. Army during the Geronimo Campaign, settlement of the west at the close of the "Indian Wars" as depicted by the Faraway Ranch, and classic structures built by the Civilian Conservation Corps.

THE NATIONAL PARK SYSTEM

The national park system represents a collection of our national heritage and includes many of the nation's most outstanding and significant natural, cultural, historic, and recreational resources. Each unit contains resources and values that make it something special—even nationally significant. The "niche" filled by each park is defined by its *park purpose*.

The National Park Service's purpose of conserving resources—whether they be natural, cultural, historic, or recreational—recognizes the importance of preservation as an active management tool. This preservation principal respects both natural and human relationships and emphasizes the value of maintaining land for the purpose of preserving natural ecosystems, historic significance, and outstanding recreational opportunities.

Balanced against the protection and preservation of these resources is the value of public enjoyment by present and future generations. Human use often can threaten

the very resources that the National Park Service is tasked to protect. Many public debates have revolved around the balancing of these two National Park Service purposes. Whether it is telling a story or distributing use carefully to protect resources, the Service uses the principles of human and natural management to accomplish its mission. But at the very least, "these areas derive increased national dignity and recognition of their superb environmental quality through their inclusion jointly with each other in one national park system managed for the benefit and inspiration of all people." (16 USC 1a-1;1970)

Park Purpose

The reason or reasons for which Chiricahua National Monument (CHIR) was set aside as a part of the national park system is called its park purpose. Purpose statements are based upon legislation, legislative history, and historic trends.

Purpose

Chiricahua National Monument was established for the protection of "certain natural formations, known as "the Pinnacles," which were of such scientific value that their protection was required by the public interest (NPS 1998). Its purposes are:

- preserve and protect all natural and cultural resources and values
- provide recreational opportunities that are compatible with the protection and appreciation of park resources for diverse groups
- provide educational opportunities to foster understanding and appreciation of the natural and human history of the area

Park Significance

Significance is summarized in statements that capture the essence Chiricahua National Monument's importance to our natural and cultural heritage. Significance statements are not an inventory of significant resources but rather describe the importance or

distinctiveness of the aggregate of resources in the park. The following are the significance statements developed for the park staff with public input through the planning process.

Significance

Chiricahua National Monument contains (NPS 1998):

- the only rhyolitic rock formation of its kind in the world (pinnacles, spires, balanced rocks), including remnants of one of the great volcanic eruptions known (27 million years ago)
- one of the three NPS areas that contain elements of Madrean flora and fauna in the United States
- part of the Sierra Madre "sky island" complex - one of the three major "megadiversity" areas found in the world where four major biomes intersect each other (Sierra Madre, Rocky Mountain, Chihuahua Desert, and Sonora Desert)
- a congressionally designated wilderness area
- examples of the transition from 19th century pioneer settlement to the mid-20th century (Faraway Ranch), including an army encampment used during the Geronimo campaign, a homestead, a working cattle/guest ranch, and related artifacts
- location of Civilian Conservation Corps (CCC) camp as well as CCC-built stone structures and trails listed on the National Register of Historic Places
- the only known monument constructed by Buffalo Soldiers



National Wilderness System. With the addition in 1984, 10,290 acres is now designated wilderness. A narrow corridor that includes the main park road, Massai Point,

Echo Canyon, and Sugarloaf parking lot, developed areas (visitor center, employee housing, maintenance yard, and campground), and Faraway Ranch is not included as part of the wilderness. The dirt road to King of Lead Mine is also excluded.

The wilderness area in Chiricahua National Monument is surrounded on three sides by USFS land and on one side by private land. Approximately 8 miles of wilderness boundary is fenced to prevent cattle from entering. Coronado National Forest, which comprises most of the Chiricahua Mountains, contains a designated wilderness area approximately 6 miles south of the monument.

As part of the national wilderness system, these lands are administered "for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness." The National Park Service will strive to manage the wilderness to perpetuate natural process and minimize human impacts. The only

Special Mandates

Designated Wilderness

In 1976 Congress designated a large portion of the monument a wilderness, part of the

visitor facilities provided are trails. No motorized vehicles or camping are permitted. Only those signs needed for visitor safety and guidance are allowed. The wilderness status makes this a Class I area for air quality considerations, meaning that degradation of quality must be minimal.

Historic District

The Faraway Ranch and the Stafford Cabin are listed on the National Register of Historic Places as a historic district. The entire district includes eight ranch buildings and a cemetery. The National Historic Preservation Act requires NPS to ensure that any federally funded or licensed undertaking is implemented only after careful consideration of its possible impacts on properties listed on the National Register.

Master Agreement with Mexico

In 1996 a letter of agreement was made between Reserva Forestal Nacional y Refugio de Fauna Silvestre Sierra de los Ajos, Buenos Aires y La Purica – Bavispe, Chiricahua National Monument, and Coronado National Memorial for the purpose of initiating a partnering project to promote the sharing of staff and resources. The primary goal among the three areas is conservation of natural and cultural resources across borders.

Staffs from the three areas developed goals of the agreement and a two-year work plan. Goals were to:

- 1) provide orientation to all areas with an exchange of personnel,
- 2) develop a staff and research station at Sierras de los Ajos to deter illicit activities,
- 3) expand scientific knowledge among the three conservation areas through cooperative research projects and information sharing,
- 4) cross train staff in resource protection and investigation, and
- 5) develop environmental education and training programs for local communities.

Projects include

- 1) loaning equipment and a trailer to Sierras de los Ajos,
- 2) conducting a strategic planning course on Mexican laws and conservation workshop,
- 3) cross training from NPS for sign making, fauna and fire effects monitoring protocols, and
- 4) jointly participating in developing environmental education, research, and resource protection activities.

Servicewide Law and Policies

Management and operations within NPS units are guided by many laws, policies, and guidelines. The following are those that apply to this planning effort:

National Park Service Organic Act
National Environmental Policy Act
National Historic Preservation Act
Archeological Resources Protection Act
American Indian Religious Freedom Act
Native American Graves Protection and Repatriation Act
Endangered Species Act
E.O. 11988: Floodplain Management
E.O. 11990: Wetlands Protection
Federal Water Pollution Control Act
Clean Air Act
Architectural Barriers Act
Rehabilitation Act
Americans with Disabilities Act

Description of the National Monument

The monument was relatively small when it was established for the singular purpose of protecting geologic features known as "the Pinnacles," which are towers and balanced rocks in a forested mountain setting. The basic rock type, rhyolite tuff, has been exposed to extensive fracturing, faulting, and erosion, resulting in the formation of pinnacles, spires, balanced rock, and isolated mesas (NPS 1980). Two major canyons, Bonita and Rhyolite, drain into the lower section of the park from the mountainous backcountry.

The Chiricahua Mountains are in the Basin and Range Biogeographical Province and are often referred to as “sky islands” because they, and the flora associated with them, are separated from similar “islands” by expansive valleys of grassland and desert scrub averaging 10 to 40 miles wide (NPS 1980). The slopes are covered with oak woodlands, pine stands, and manzanita fields and rise from lush riparian canyons or desert scrub and grasslands.

A more recent addition was Faraway Ranch, a historic area consisting of the furnished Erickson-Riggs ranch house, several outbuildings, fences, pens, and corrals. It was the home of the Ericksons, who were among the first settlers in these mountains, and later of their daughter Lillian Riggs and her husband, Ed. The Riggses made the Faraway Ranch into a pioneer guest ranch and were the primary promoters of establishing the national monument.

A short distance west of the ranch and close to the present parking lot is the 1885-1886 encampment of the Buffalo Soldiers, a troop of black soldiers of the 10th Cavalry that spent many years in the “Indian Wars” of the Southwest. They were sent to Bonita Canyon to prevent the Chiricahua Apaches from using local water sources, to guard the mail, and to protect settlers and their livestock. After Apache leader Geronimo surrendered in September 1886, the Buffalo Soldiers departed. While in Bonita Canyon, the troopers built a stone monument to the late President James Garfield. Today only the base remains; the upper stones, many with inscriptions by the soldiers, were removed by Ed Riggs and used to build the fireplace in the ranch house in the 1920s.

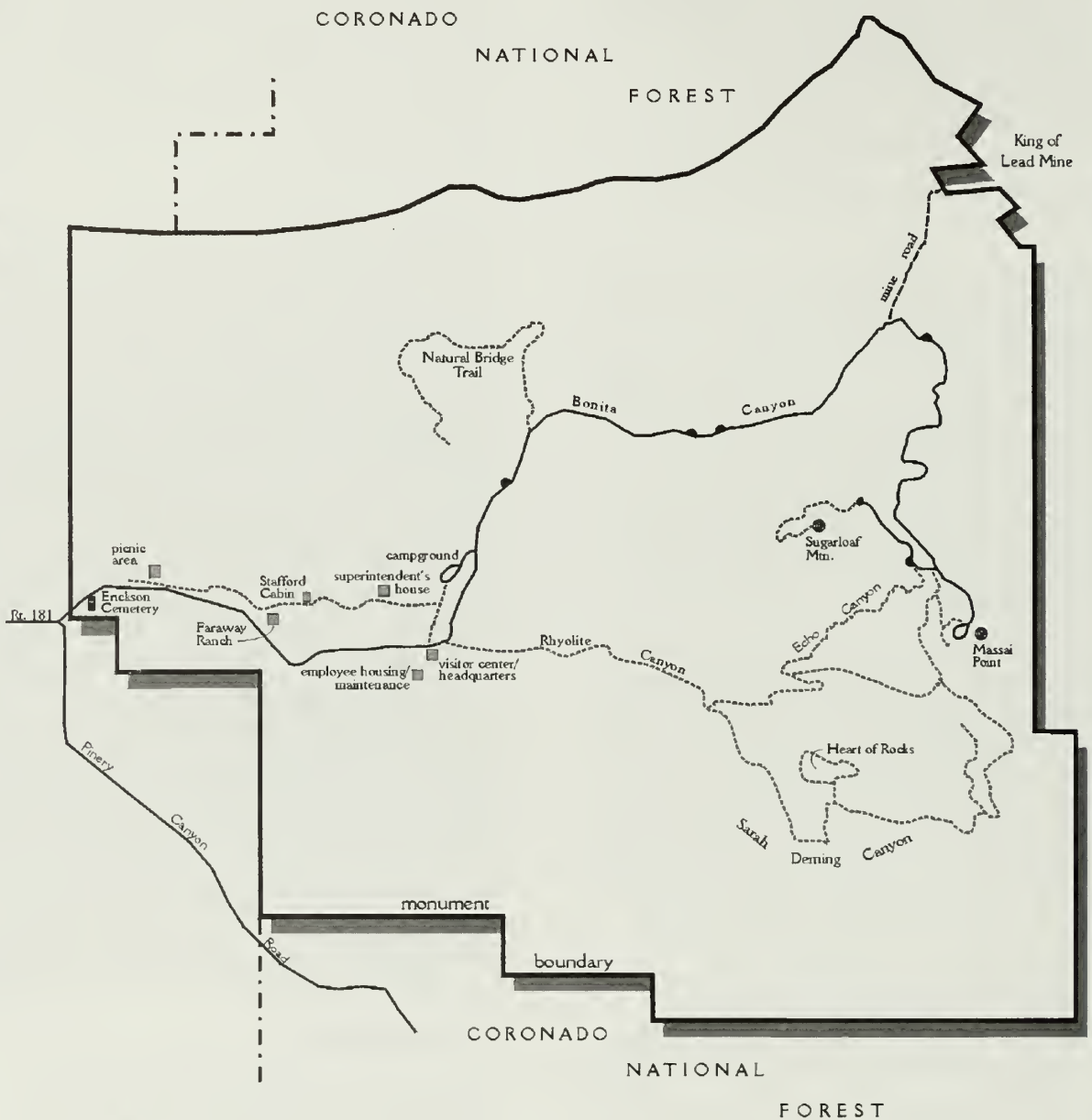
Today the park contains 11,985 acres of ruggedly beautiful mountain and canyon landscape. Trails lead to outstanding formations and viewpoints. There is no camping or other overnight use in the backcountry.

The main road enters the monument at the mouth of Bonita Canyon and runs through the canyon and high slopes to Massai Point, which provides an astounding view over the Chiricahua Mountains and lowland deserts to the east and west. There is a succession of superlative vistas of lush riparian zones, rhyolite pinnacles, Cochise Head, and broad desert valleys with more sky islands in the distance.

The road, which was built by the CCC in the 1930s, is very narrow with many curves. All of the monument’s development and most of its visitor activity occur along this road: Faraway Ranch, picnic areas, maintenance yard, employee housing, visitor center, campground, and a small exhibit structure atop Massai Point (see park map). Along the road are trailheads leading into the wilderness area. Other than short administrative roads and a dirt road to a mine, there are no other roads in the monument. Three residences and four maintenance buildings were constructed by the CCC. Three other residences were constructed during NPS’s Mission 66 program, and the rest are more recent. The CCC also constructed the original visitor center, campground caretaker’s house and rest room, fire tower on Sugarloaf Mountain small exhibit structure on Massai Point, and most of the trails. The CCC-built structures are eligible for listing on the National Register of Historic Places.

Planning Process

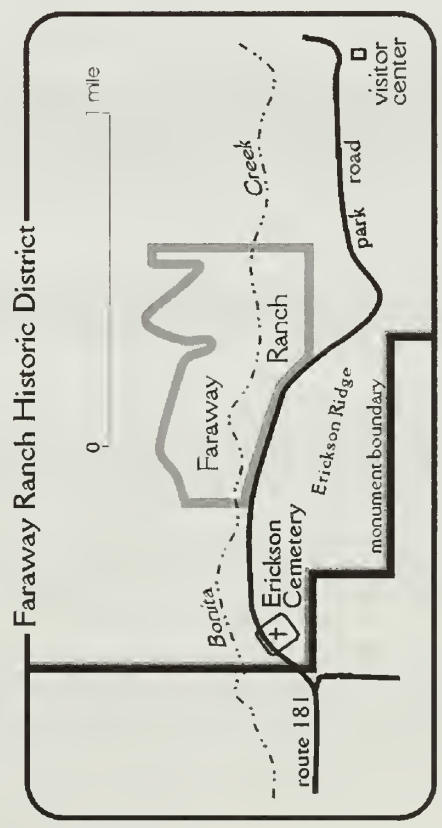
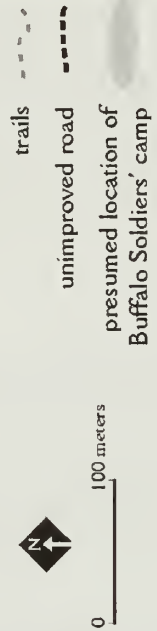
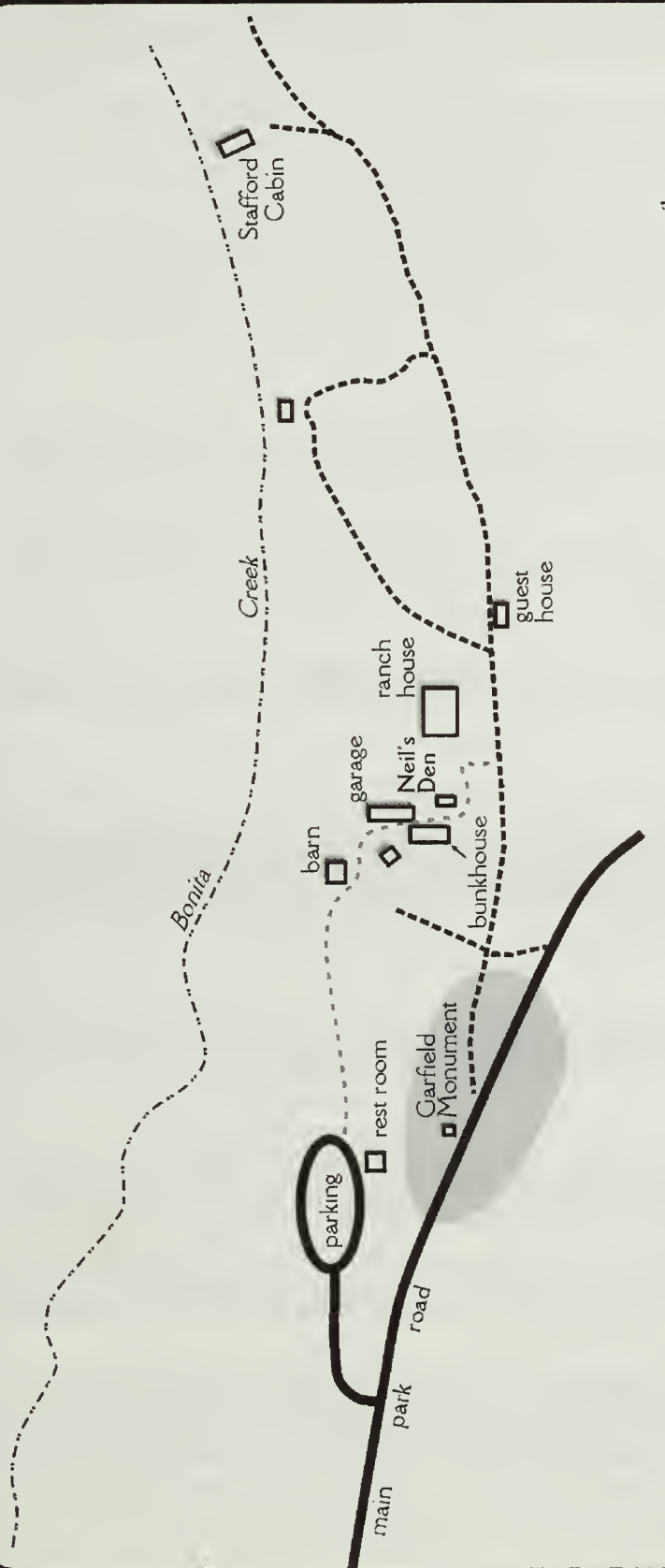
Prior to this current general management planning effort, a similar process began in 1992. Scoping sessions by the park staff, a public open house, a press release, and a letter to 392 people on the mailing list for both Chiricahua NM and Fort Bowie National Historic Site (NHS) raised a series of issues. After a national reorganization in the National Park Service, the general management planning process was restarted in 1996 with a different planning team. The first step in the second process was a review of the work



Existing Conditions

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Faraway Ranch

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previously done and the incorporation of the 1992 public comments.

For the current project, a newsletter was mailed in early May 1998 to all interested parties and those on the park mailing list informing them of GMP projects for both Chiricahua NM and Fort Bowie NHS. The newsletter invited the public to attend meetings to discuss both plans. Notices of the public meetings were also sent to nearby newspapers. Four meetings were held the week of May 18th in the towns of Portal, Willcox, and Bowie, and at a school just outside of Chiricahua NM. A total of 19 people attended the meetings. The GMP process was described at each meeting, as were the two parks. There was general appreciation expressed for the parks, and recommendations were made not to change them.

All suggestions were discussed and notes were taken. Another 24 mailed responses were received from newspaper readers.

Letters were also sent to six Apache tribes and one nation in Arizona, New Mexico, and Oklahoma, and to two interested individual American Indians. No responses were received.

A Notice of Intent to publish an Environmental Impact Statement was published in the Federal Register in June of 1999. A 30 day public comment period followed ending on July 15, 1999. A website (<http://www.nps.gov/planning/chir>) was established to facilitate making information about the planning process available to the public. A total of 5 responses were received requesting information on the planning process. Groups included one organization interested in land issues, one interested in handicapped accessibility, and two unaffiliated individuals.

The following table lists the issues raised from the two scoping efforts and how they were addressed in the planning process:

Results of Scoping	
Issue	Location in EIS
Consider whether this should be a day use park or continue to allow camping	Need for the Plan, Issues; Alternatives, Alternatives Considered but Rejected
Provide a means to alleviate the shortage of parking spaces at trailheads and parking areas	Alternatives, Proposed GMP
Provide transportation system	Need for the Plan, Issues; Alternatives, Proposed General Management Plan (GMP)
Improve traffic management (close entrance or certain areas of park when crowded)	Alternatives, Proposed GMP
Restrict the size or number of vehicles	Need for the Plan, Issues; Alternatives, Proposed GMP
Make a reservation system	Alternatives, Proposed GMP
Relocate visitor center in a headquarters/visitor orientation facility outside of park	Alternatives, Proposed GMP
Move visitor center and headquarters area to a headquarters/visitor orientation facility along entrance road before intersection of Pinery Canyon	Alternatives, Proposed GMP
If the headquarters/visitor orientation facility is built, also include collections storage, library, meeting space, etc.	Need for the Plan, Issues; Alternatives, Proposed GMP

Results of Scoping

Issue	Location in EIS
Convert existing visitor center to only a visitor use facility if new headquarters/visitor orientation facility is built outside park (still too small, not enough parking, National Register property, access problem)	Need for the Plan, Issues Alternatives, Proposed GMP
Relocate NPS offices to Willcox at least for short term if needed	Alternatives, Proposed GMP
Retain all existing employee housing (refer to housing plan)	Need for the Plan, Issues; Alternatives, Proposed GMP
Work with others to provide camping opportunities outside park	Need for the Plan, Issues Alternatives, Proposed GMP and Alternatives Considered but Rejected
Are concession services needed in the park?	Need for the Plan, Issues; Alternatives, Proposed GMP
Do not allow concession food or lodging, firewood, and campground support sales in park	Need for the Plan, Issues; Alternatives, Proposed GMP
Guided services and tour operations originating outside the park are acceptable uses	Need for the Plan, Issues; Alternatives, Proposed GMP
Provide RV dump station (or direct to nearby dump stations)	Need for the Plan, Issues; Alternatives, Proposed GMP
Obtain landscape study and vegetation management at Faraway Ranch	Appendix 2, Future Plans and Studies Needed
Improve historic structures maintenance using preservation techniques	Need for the Plan, Issues; Alternatives, Proposed GMP
Limit use of historic structures as offices at Faraway Ranch	Need for the Plan, Issues; Alternatives, Proposed GMP
Take proper care of collections displayed and stored at Faraway Ranch	Need for the Plan, Issues; Alternatives, Proposed GMP
Rearrange visitor circulation pattern at Faraway Ranch	Need for the Plan, Issues; Alternatives, Proposed GMP
Faraway Ranch buildings open to the public should be accessible to persons with disabilities	Need for the Plan, Issues; Alternatives, Proposed GMP
Improve accessibility of park facilities, especially trails, Massai Point, and public buildings at Faraway Ranch	Need for the Plan, Issues; Alternatives, Proposed GMP
Add accessible trail from picnic area to Stafford Cabin	Need for the Plan, Issues; Alternatives, Proposed GMP
Redesign Massai Point overlook to be accessible	Need for the Plan, Issues; Alternatives, Proposed GMP
Install sprinklers and climate control in Faraway Ranch building	Need for the Plan, Issues; Alternatives, Proposed GMP
Reconfigure water system to eliminate dead ends and provide adequate utilities to serve facilities	Need for the Plan, Issues; Alternatives, Proposed GMP
Install underground power and telephone lines and remove overhead lines	Alternatives, Proposed GMP
Make minor realignments of some wilderness trails	Need for the Plan, Issues; Alternatives, Proposed GMP
Build more trail connections to Coronado National Forest	Need for the Plan, Issues; Alternatives, Proposed GMP
Provide better interpretation of wilderness values	Need for the Plan, Issues; Alternatives, Proposed GMP
Enhance a fire management program to reduce hazardous fuel buildup and restore natural fire regime	Need for the Plan, Issues; Alternatives, Proposed GMP

Results of Scoping

Issue	Location in EIS
Determine whether additional boundary adjustments are warranted	Need for the Plan, Issues; Alternatives, Proposed GMP
Purchase King of Lead Mine	Need for the Plan, Issues; Alternatives, Proposed GMP

ISSUES

Visitor Use and Interpretation

Accessibility—The rugged topography of Chiricahua provides few opportunities for mobility impaired visitors. However, there are some locations where access can be improved. The best trail opportunity is that which begins at the Bonita Creek picnic area then winds along the relatively flat Bonita drainage past Faraway Ranch to the Stafford Cabin. The trail continues on to the campground, but beyond Safford Cabin the topography is unsuitable. All of the ranch buildings that are open to the public would be made accessible. The viewpoint and exhibit building atop Massai Point provide an outstanding interpretive spot and the most sweeping views in and from the monument. The structure sits on top of a knoll above the parking lot and is reached by a nonaccessible trail. The path can be rerouted or modified for accessibility during a forthcoming design effort for Massai Point.

Campground—Using the campground is one of the park's most popular activities. This allows visitors to spend more time in the monument and to enjoy it in a different way than those who visit only for several daylight hours. Camping is a desirable activity, and the rustic character of the campground is very appealing. That character would be altered if it were enlarged, reduced in size, or recreation vehicle hookups and dump station provided.

There have been occasional problems when a long recreation vehicle gets hung up on rocks, trees, or road shoulders, especially where the road crosses the creek bed.

A potentially serious problem is flash flooding of Bonita Creek. Flash floods can occur during the July-October monsoon season when heavy local thundershowers are common. Flash floods may also rarely occur during other times of the year because of extreme precipitation events, especially if the watershed is already saturated. Because the Bonita watershed is small, a flash flood can form in the headwaters and flow past the campground in a short time. The campground is on both sides of Bonita Creek and has a closed-loop, one-way campground road that twice crosses the normally dry channel. There are two groupings of campsites, one on the east bank and one on the west.

- East bank—Sites #1-7 and the road serving them, are partially or entirely within the estimated 100-year flood zone. The group site, which is reached by a different road, is partially within the 100-year line, and its approach road is entirely within it.
- West bank—Sites #21-25 and the road serving them and the rest room are partially or entirely within the 100-year flood zone. Because the west bank sites are reached only by a road with a stream crossing, all of them would be isolated for the duration of a flood.

Most of the campground is within the 100-year and 500-year floodplains, and all of it is within the maximum expected flood event boundaries. Park use of this delineated floodplain area subject to flash flooding for a campground is considered a class III action under Executive Order 11988 "Floodplain Management" and requires notification, warning, and development of mitigation for the flooding threat. The campground lies in the only available terrain for such use within

the monument. No additional flat or gently sloped areas remain in the park that could be suitably developed with water and sewer utilities, without serious impacts to natural or cultural resources and wilderness. All other

Cultural Resources

Faraway Ranch—The ranch is the next park feature encountered by the visitor after the nature trail. A paved parking lot with an accessible rest room serves as the trailhead. A 450-foot trail leads to the ranch buildings, first to the tack shed, barn, and other outbuildings, and then to the main house. The trail continues along Bonita Creek past Stafford Cabin to the campground about ¼ mile upstream.

The main house, which represents several stages of growth and use during its occupation by the Erickson and Riggs families, is restored and

in excellent condition. The main floor is furnished and equipped with authentic possessions of the families. Visitors are led through the main floor on interpretive tours. Two of the outbuildings that are also open to visitors are:

- Neil's Den, a small structure in good repair near the main house that contains interpretive exhibits
- The deteriorating tack shed and barn, which contain some of the ranching equipment but have no exhibits.

There are a number of concerns for Faraway Ranch. The water supply is insufficient for fighting a structural fire. Outlying buildings are deteriorating, some of which poorly house museum collections. Circulation patterns could be improved. Three of the historic structures are being used for offices, but are inadequate for staff in space or facilities. The guest house is divided into two separate units; an employee residence and a resources management office. The bunkhouse contains offices for the rangers and the curator and one room that is used as



gentle terrain on site is already occupied by visitor facilities and historic structures, some having similar or worse flooding threats. Because of the small size of the watershed and the erratic nature of the storms, no practicable automated flood warning system is currently available. Ranger patrols warn campers when a flood threat appears likely from existing or predicted weather systems.

There is no dump station in the park. Some campers leave the park with full RV holding tanks and open the valves to release raw sewage on Route 181 as they drive away. Some method is needed to stop this behavior.

Trails—No major additional trails are needed in the backcountry, but minor changes should be made for safety purposes and the entire system should be improved by connecting with USFS trails. The adjacent Douglas Ranger District, Coronado National Forest, has a system of 250 miles of trail.

both a work room for interpreters and for occasional visitor contact. The garage now serves as a shop and storage space for the maintenance staff and for restoration work. Using these structures for administrative purposes prevents them from being appropriately interpreted and open to the public.

The visual impression received by the visitor approaching the ranch buildings on the trail from the parking lot is mixed, because the first things encountered are fences and corrals in a state of disrepair. Further on, the other buildings are in better repair and provide a better visual impression.

Historic District Landscape—The ranch land has undergone continual change since the Ericksons first occupied it. Suppression of wildland fires and cessation of grazing has allowed trees to invade the old pastures east and west of the house. The orchard has not been tended for many years and is in a poor state, with most of the trees missing or obscured by other vegetation. Four ranch-era trash dumps exist on the property, but they have not been surveyed to learn what artifacts they contain. The fences to the west of the tack shed are in a state of disrepair and in some places are destroyed. They do not convey to the observer a coherent picture of the role they played in the ranch. Additional human developments, for example, picnic area, parking lot, have been constructed in the viewshed.

Current vegetation is a fire hazard, and there is less open area than previously maintained through historic fires or farming. A cultural landscape inventory has been completed, but a cultural landscape report is needed to provide specific and detailed management recommendations for landscape management goals. The year being used to interpret the outbuildings at Faraway Ranch is 1950, the year of Ed Riggs's death. Up to that point the ranch landscape and buildings reflected the efforts and personality of Ed Riggs, with his ability to creatively locate and recycle needed

materials. Following his death, the ranch was maintained by hired help, a departure from the earlier style. This time frame is used to interpret all but the ranch house interior.

Interpretation of the landscape presents additional problems and opportunities. Because living landscapes do not remain static, but grow and change with time and outside influences, interpretation of the Faraway historic district landscape attempts to present what remains of the earlier periods, but also accepts what it has come to be. Older trees die. Exotic plants invade. Species shift. The one major attempt that park staff makes to reflect the landscape of an earlier time is to reduce the number of young juniper and oak trees that have invaded the former meadow and orchard area between the ranch house and the Stafford cabin. Nine fruit trees were planted just east of the ranch house to serve as a representation of the earlier fruit orchard. Currently the corrals around the tack barn that have fallen to the effects of weathering and a lack of maintenance are being repaired and replaced.

Natural Resources

Fire Program—Wildland fires were suppressed for over 80 years under the mistaken notion that fire was bad, which caused serious problems in the ecosystem. Large amounts of fallen limbs, needles, and trunks (that otherwise would have been removed by periodic fires) piled up on the forest floor could serve as fuel for a major fire. Species that need the clearing effect of fire and the fertilizing ashes they produce have difficulty reproducing. Trees and shrubs encroached into open areas. All of the ecological effects of fire suppression are not known, but suppression is clearly detrimental to the land and contradictory to NPS purposes.

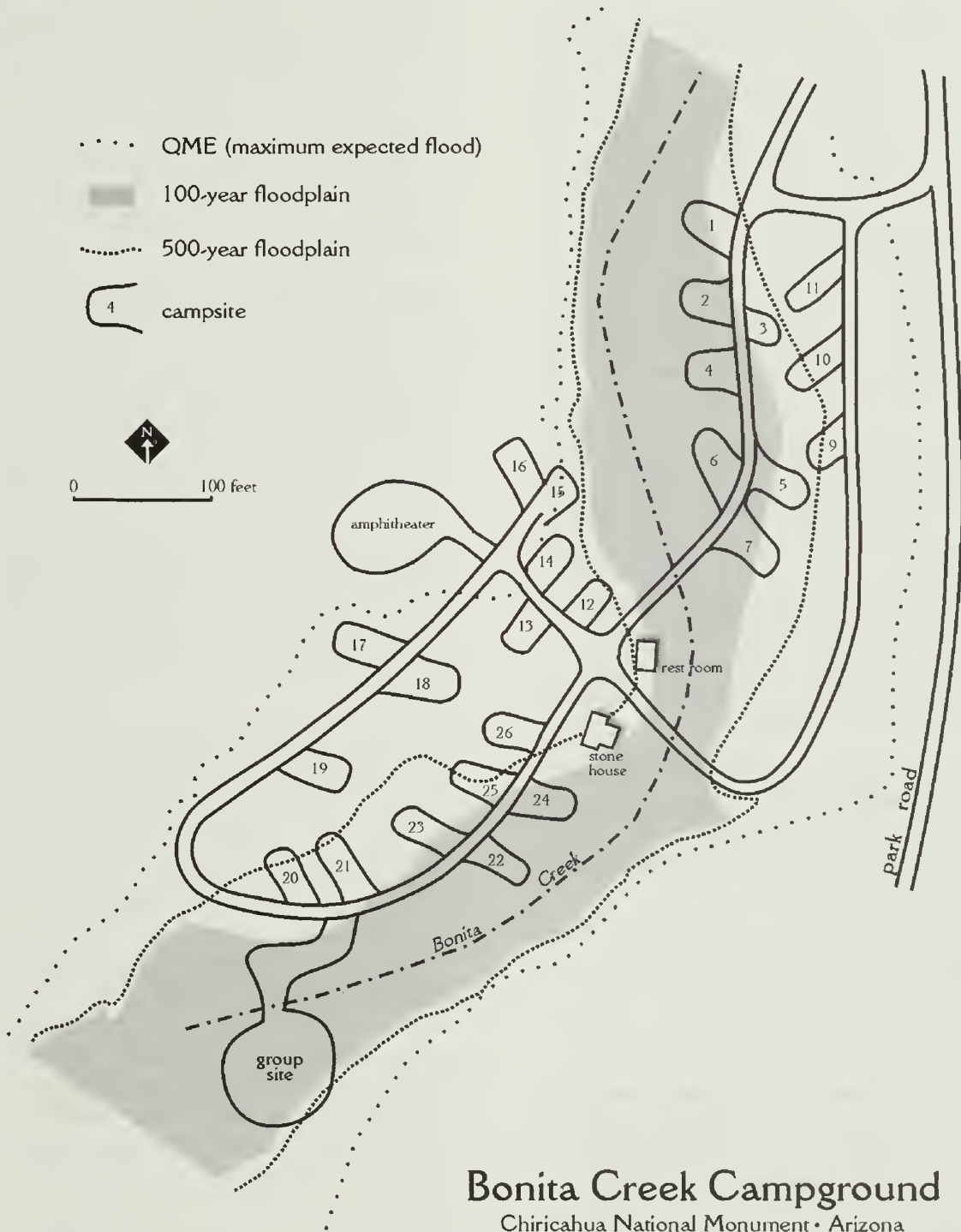
To deal with this problem, Chiricahua had one of NPS's earliest fire plans and was doing prescribed burns in the 1970s. The current

..... QME (maximum expected flood)

100-year floodplain

500-year floodplain

4 campsite



Bonita Creek Campground

Chiricahua National Monument • Arizona
U.S. Department of the Interior • National Park Service

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plan calls for igniting fires to emulate the natural fires that were excluded for 80 years and for taking advantage of lightning-caused wildland fires to reduce fuels and rejuvenate habitat. The amount of acreage treated needs to be increased. The plan would be followed in close cooperation with USFS and nearby ranchers. This program is of major public interest and would be accompanied by information and explanation. There have been fire history studies done, but more information is needed about vegetation composition and structure as well as response of individual species to direct and indirect fire effects.

Wilderness and Backcountry—There are no signs of crowding in the backcountry, so right now no limits are needed on the number of hiking visitors allowed at one time. The ability of the 10,290 acres of wilderness to absorb and distribute hikers would keep a low density of hikers to ensure a rewarding wilderness experience. Connecting with USFS trails would enhance the experience and further disperse hikers.

Most park visitors, including those who hike the wilderness trails, do not understand the purpose or significance of wilderness designation, or that most of Chiricahua has been so designated.

An existing boneyard and park firearms training range now encroaches on the wilderness and would be moved.

Operational Efficiency

Visitor Center and Headquarters—The visitor center building (VC) serves as both a visitor interpretation/information/orientation center and as the main administrative office. The VC is not large enough for these two functions, as evidenced by the need to house the resources management, interpretation, and ranger staffs in a Faraway Ranch building. Also, there is no appropriate space for a library, archives, collection storage, and herbarium. Not only is it an inconvenience to have the staff in

separate locations, but also the building might better serve as an exhibit. Because the VC and Faraway Ranch are historic structures, they do not lend themselves to the full adaptations needed to modernize offices.

The interpretive exhibits are more than 30 years old and need updating and replacing. The exhibits and book sales area are in a cramped space.

Another major drawback is the small visitor center parking lot; there are only 20 spaces at the monument's main point of visitor concentration. At busy times the lot is filled to capacity, and this is exacerbated by tour buses and large recreation vehicles. Physically, the parking lot could be enlarged only by expanding it across Rhyolite Creek and removing many trees. Even if the existing building could be enlarged to provide the necessary space, the parking area cannot be, which is the main obstacle to solving the visitor center and headquarters problem at this location.

The park is currently authorized 23 permanent, full-time employees. Additional staff includes two cooperating association employees, an average of five VIPs at any given time, and multiple researchers and Student Conservation Association interns. The park has office space with climatic control to accommodate only eight employees. The headquarters facility only accommodates the superintendent, administrative officer, one clerical worker, and one visitor center employee. No other office space with climatic controls exists. Many offices are in dilapidated historic structures that lack climatic control and are infested with rodents, thus presenting a serious health concern to the employees. The park has no space to accommodate group meetings of more than five people.

A new facility would enhance operational efficiencies by consolidating staff within an area that is safe and meets minimum space requirements.

Road and Parking—The road was built in the 1930s. Because of its narrow width, lack of shoulders, and tight turning radii, the road is inadequate for the large recreation vehicles and buses that use it today, and such traffic is increasing. There are no legal passing zones and few places where a slow or large vehicle can pull over to allow others to pass. As a result, large recreation vehicles, which tend to move slowly on the winding road, hold back other vehicles. The problem becomes acute when two such vehicles pass in opposite directions, filling the entire road. Clearly, being caught behind such a slow-moving, view-blocking vehicle is frustrating and could become a potentially dangerous introduction to the park should the following vehicle attempt to pass.

The major parking locations are at Faraway Ranch, the visitor center, Sugarloaf Mountain, Echo Canyon, and Massai Point. The parking problem is serious, but not yet acute. The dead end road, with its very limited parking at major points of interest, imposes a definite limit on the number of vehicles that the entire park can accommodate at one time. Driving back and forth, fruitlessly looking for a parking spot and perhaps finding one at a place where the visitor did not want to stop reduces a visitor's pleasure, as does waiting behind an idling vehicle. With only an estimated 190 spaces parkwide, parking is often inadequate during the high visitation months of March, April, and May. The visitor center parking area, which also serves as a trailhead for the entire system of trails in Rhyolite Canyon and its tributary creeks, is so small (approximately 20 spaces) that it causes the major parking problem in the park. Some trailheads have only a few or no parking spaces. When large recreation vehicles and trailers park, they commonly occupy two or more spaces, compounding the shortage.

During the peak visitation hours, heavy use of Massai Point and Echo Canyon parking lots occurs, up to 238% of capacity at Echo Canyon and 146% of

capacity at Massai Point (NPS 1999). There is substantial illegal parking at both of these lots. The Sugarloaf parking lot is underused and is not a problem. The parking problem at the monument is caused by two different types of visitors: sightseers and hikers. The typical sightseer wants to visit both Massai Point and Echo Canyon and will stay less than 30 minutes at Massai Point and less than 60 minutes at Echo Canyon if there is an available legal parking spot. The typical hikers' main destination is Echo Canyon, followed by Massai Point. When hikers drive themselves up to the mountain vista parking lots, they park for approximately 3 to 5 hours on weekdays and approximately 3 to 4 hours on the weekends.

To alleviate the parking problem, the monument operates a visitor transportation system in the form of a seasonal hiker shuttle that takes hikers from the visitor center, campground, or Faraway Ranch areas to their trailhead destinations.

Water and Septic Systems—There are three separate water and septic systems:

- *Visitor Center, Campground, and Employee Housing*—The water system has a well and pump in the campground, three storage tanks totaling 80,000 gallons, and gravity flow to points of use. Because of the spread out pattern of the distribution lines, there are three "dead ends" in the system that could be public health and maintenance problems. The water supply (in contrast to its distribution) is adequate to meet current demand.

The VC and housing have two septic systems, and the campground has a third. The septic systems are old and operating at or near capacity. The drain lines in the campground system are in need of major upgrading.

Superintendent's House—The system is adequate and self-contained (well and septic). The swimming pool is kept full and is available for fire suppression in the house and the surrounding grounds.

- **Faraway Ranch**—There is a well east of the main house and a 10,000-gallon tank on the hill. Gravity flow through buried pipes supplies the guest house (currently used as employee quarters and office space), public rest room, and three outdoor hydrants. There is one septic system for the guest house and another for the rest room. One deficiency is the lack of a fire-fighting hydrant or standpipe near the parking area.

The water systems do not need to be replaced in the near future, but the “dead ends” of the main water system are problems. Because of the lack of a circulating flow, water can get “stale” at the dead ends, which means purifying chemicals can lose their effectiveness. Also, it is not now possible to isolate specific sections of the system, so if there is a problem in one section, the entire system must be closed down.

The septic systems have little or no excess capacity to absorb additional loads.

Employee Residences—There is sufficient housing for the current and anticipated level of employees who would live in the park. Additional housing is available in the surrounding area and communities, where several employees reside. There are two groups of housing units close to the visitor center, all of which were constructed at various times as employee housing, plus three houses away from the primary residential area. There are four units east of the maintenance yard, consisting of three built by the CCC in the 1930s and a fourth built during Mission 66. All four units are currently occupied by permanent employees.

To the west of the maintenance yard are six more units. Two are Mission 66 houses currently occupied by permanent employees. The others are recently constructed buildings used by researchers, volunteers, seasonal employees, and visiting NPS employees.

Of the three separate houses, one is a modern house on an inholding added to the park that has traditionally been occupied by the superintendent. It is close to Bonita Creek just

upstream from the Stafford Cabin in the creek floodplain. On one occasion the house was isolated by floodwater flowing on both sides. Another is a small CCC-built house in the campground meant for a caretaker. It is usually occupied by a seasonal employee. The third is the guest house of the Faraway Ranch, half of which is used as an employee residence and half as an administrative office.

Commercial Services—All general management plans are required to analyze the need for commercial visitor services. Some commercial visitor services are provided by gateway communities and on occasion by neighbors who open convenience stores. With a short length of stay and the relative isolation of the park, visitors would need some food and lodging services. However, because nearby communities already provide these services and the park land base is very small, there is no need for concessioner-provided food and lodging inside the park. There are 13 restaurants, 15 motels, 10 trailer parks, 3 RV parks, and 4 bed and breakfast units in nearby communities. Additional visitor in-park services or facilities would require more development of park land, and the park water and sewage systems are approaching their capacity and would be strained by additional demand.

Other commercial visitor services currently being provided include sale of visitor convenience items and horseback, hiking, and bus tours. Other activities could be added if they enhance the visitor experience, are appropriate for the park, and are consistent with resource protection prescriptions. Some of these activities might include bicycle tours and shuttle services to alleviate crowding and prevent traffic jams.

Boundary—The water quality of Bonita Creek is potentially threatened by polluted drainage from the King of Lead Mine. The park is working with the state to ascertain how serious the pollution is within the mine, what the likelihood is of it draining into the

watershed, and who is responsible for mitigating the problem. Because of this concern, a boundary adjustment and acquisition of the mine would be considered. In the most recent boundary expansion legislation the King of Lead Mine was excluded because the owner of the patented claim was unwilling to sell. He is now interested in selling. Low levels of cadmium and lead have been detected in the soils at the King of Lead Mine. Pursuant to USDI policy, the NPS could not purchase the property until it has been certified as safe for the uses proposed.

The King of Lead Mine haul road, which runs from the northernmost curve of the park road to the mine, provides legally guaranteed access to the mine owner. The unimproved and unmaintained road also serves as a foot trail through the mine property to the park boundary, and to Coronado National Forest including, Cochise Head. The haul road, which is used infrequently by the mine owner, is occasionally used by backpackers to camp along the national forest trails, because there is no backcountry camping in the park. The mine owner permits hikers to cross his property, but this passage is not guaranteed and could be revoked at any time. At present, the park has no control or authority over the part of the trail on the mine property. There are also concerns over the safety of hikers passing near an unsealed, unsigned mine shaft.

If a new headquarters/visitor orientation facility is built, it could be located outside the park on State Route 181. If the selected location is adjacent to or near the existing

boundary, it could be accommodated by a minor boundary extension, land purchase from a willing seller, or a lease option.

Most of the park is surrounded by Coronado National Forest, where management is complementary and cross boundary trails provide an extended recreation opportunity. There are no resources on the adjacent parts of the forest that should be included in the park. The only justification for boundary adjustments would be to move from the rectangular coordinates that are the basis for the present boundary to a more practical boundary aligned with topographic features like ridges. Because of the close cooperation between the monument and the national forest and the similarity of land use along the boundary, there is no need to make a change.

On the southwest, along Pinery Canyon road, USFS has transferred some national forest land that abuts the boundary to a private owner in exchange for land acquired from the same owner elsewhere in the forest. Depending on the uses to which the new owner puts his land, this area could cause visual problems for the park in the future.

The western park boundary abuts private land. Except for the possible extension mentioned above for a headquarters/visitor orientation facility, there is no current reason to expand the boundary there. The boundary at the park entrance at the mouth of Bonita Canyon, makes a clear demarcation between the park and the broad valley to the west. All private land use in the area (mainly ranching and scattered private homes) is compatible with the park entrance.

ALTERNATIVES

INTRODUCTION

Two alternatives, the no-action alternative and the NPS proposal, are presented in this chapter. The proposal is the proposed general management plan (GMP) for Chiricahua NM and if adopted will serve as the park's GMP. The plan will guide the management and development of Chiricahua for the next 12 to 15 years.

MANAGEMENT PRESCRIPTIONS

Management prescriptions detail desired visitor experiences and resource conditions for various areas of the park. Specific guidance for each area is described using the following six categories: visitor experience, access, natural resource management, cultural resource management, facilities, and maintenance. There are four prescriptions for management—primitive, motorized rural, developed, and resource preservation.

The following are the prescriptions for Chiricahua.

Primitive

Management provides wilderness experiences. Challenge and adventure for visitors are high and are in an environment free of human influence and alteration. Natural processes and conditions would be perpetuated. The setting is composed of an unaltered natural landscape. Encounters with other people are infrequent, and there are no facilities present unless essential to protect resources or provide for visitor safety and well-being. There is no motorized access to the primitive area.

Visitor Experience—The primitive area provides abundant opportunities to experience the backcountry wilderness in solitude. It is reserved for hiking and nature observation. Off-site interpretation and education are stressed.

Generally visitors are isolated from human sights and sounds. Visitors can experience a feeling of closeness with nature and have the opportunity to experience solitude, tranquillity, and quiet because encounters with others are few. A moderate degree of challenge, self-reliance, and risk is prevalent for visitors to this area, and knowledge and use of outdoor survival and wilderness skills are recommended.

Evidence of recreational use is generally not readily apparent except along trails and access routes. Resource manipulation is kept to a minimum, but some resource management actions might be required to reduce the impacts of visitor use. A limited number of interpretive exhibits or signs could be needed to meet objectives of protecting the resource. Rules and regulations are explained to visitors before they enter the wilderness.

Management helps to ensure an experience in an untrammelled, primeval environment. Evidence of other visitors is also minimal, and there is a sense of being immersed in a natural landscape, without comforts and conveniences. Visitors to this area commit to a moderate level of time and energy.

Access—Access to the primitive area is challenging. The area within designated wilderness has no roads, and visitors may travel cross country or on low-standard trails that provide connections over ridge lines. Discovery and adventure are the order of the day.

Public access is by foot, except for trails also designated for horseback use. Within the wilderness, aircraft use is only permitted for emergencies and necessary administrative functions.

Natural Resource Management—The natural environment is preserved to the maximum

extent possible while accommodating low-density backcountry use. Naturally occurring species are maintained or reestablished, and populations of sensitive species are protected and augmented. The introduction of nonnative species is prevented to the extent possible, and attempts are made to eliminate introduced species before they become established. The NPS maintains close control over resource-damaging activities.

Monitoring is carried out regularly, and mitigating measures (revegetation, species augmentation, and reintroduction of extirpated species) are done as needed. Uses are controlled or dispersed if necessary to protect resources. A backcountry permit system could be implemented if resources or solitude are threatened.

Cultural Resource Management—Cultural resources selected to illustrate interpretive themes and those listed on or eligible for listing on the National Register of Historic Places would receive stabilization. A cultural resource management plan guides management decisions and addresses the treatment of individual sites. Coordination and consultation with the state historic preservation officer (SHPO) is a part of the process.

Facilities—No developments are allowed, and there are only minimal modifications to the natural environment. Rustic signs, cairns, and primitive trails could be present. No facilities are present. Additional facilities are provided only if they are essential to protect resources.

Maintenance—Maintenance activities serve to protect resources and restore areas disturbed by human activities. There is no recurring maintenance in the primitive area. Power tools are not allowed unless the superintendent determines that such tools are necessary to respond to a life- or resource-threatening emergency.

Motorized Rural

Management provides for vehicle access along one paved road, which gives a sense of remoteness. Although the area is predominantly natural, sights and sounds of human activity are occasionally encountered. The types of visitor activities to be accommodated in the motorized rural area include but are not limited to camping opportunities, wayside interpretive exhibits, interpretation along trails, and access to hiking trails. Opportunities for more solitude than experienced in the developed areas could be expected in this area, except on peak season weekends. Human interaction and contacts with NPS staff could be moderately frequent during these times and infrequent during the off season. Visitor challenge would be low owing to the presence of roads and motorized vehicles. A moderate amount of resource manipulation would be required to mitigate impacts associated with moderate human-use levels. Natural conditions would be maintained as much as possible, however, some human intervention and alteration would be evident along roads, at trailheads, and in the campground. Support facilities such as picnic tables, fire grates, and vault toilets could be provided.

Visitor Experience—There would be a sense of remoteness and seclusion, but not of isolation from human activity. Visitors would be able to reach undeveloped areas of the park from the main paved road via trailheads. For those who are unable to access the more semiprimitive areas of the park, this area would provide an alternative and allow a rural experience without the degree of difficulty found in the primitive area.

A limited amount of interpretation and education is provided. It is designed to supplement the low-profile signs and interpretive exhibit panels placed in selected locations to provide information, offer limited interpretation of park themes, ensure

protection of park resources, and provide for visitor safety.

Access—Access to the motorized rural area is easy. Only one paved road is provided, and all access originates from this road. Trails for hiking could originate from this area. Short interpretive trails could allow visitors to discover areas of special interest. Access for visitors who are physically challenged could be provided in selected areas to allow these visitors to experience representative park settings.

Natural Resource Management—The natural character of lands is preserved to the extent possible while accommodating moderate visitor-use levels. Any apparent effects of visitor use would be mitigated, and disturbed areas that caused significant visual impairment would be restored. The cumulative effects associated with unacceptable levels of visitor use at campsites or in other areas of visitor concentration could be mitigated or prevented by ensuring appropriate levels of visitor use.

Cultural Resource Management—Cultural resources identified to illustrate interpretive themes and those nominated, listed, or eligible for listing on the National Register of Historic Places could receive moderate stabilization. A cultural resource management plan (CRMP) has been prepared and addresses treatment of individual sites. Coordination and consultation with the state historic preservation officer is part of the process.

Facilities—Only limited development would be provided, and few major structures or facilities would be present. A paved road, a rustic campground, interpretive panels and information signs, and trailheads are examples of appropriate facilities for this prescription area.

Fire grates, picnic tables, vault toilets, and water could be provided, but no electricity or sewer connections would be available. Size

restrictions could be placed on RVs and trailer-campers.

Maintenance—Activities could include maintaining roads and facilities (cleaning, painting, repair, pump-out, etc.), hardening sites, providing for visitor convenience and comfort, protecting resources, and restoring areas disturbed by human activity.

Developed

This management prescription includes all major park development required to serve visitors and meet the needs of management. It encompasses areas where park development and/or intensive use substantially alter the natural environment or the setting of historically significant resources. This is an area where major visitor facilities provide an experience that is facility dependent (e.g., visitor center/admin building). The sights and sounds of vehicles and people predominate as does the experience that is tied to traffic along the major road corridor of the park.

This area would accommodate the highest levels of use in the park. Visitor activities would be fairly structured and directed and involve little challenge. Support services and facilities could be moderate. Visitor contacts and contacts with NPS personnel could be frequent in this area, especially during peak visitor periods. Contacts could be less frequent during the off-peak season but might still be common compared with other management areas within the park. There could be little or no opportunity for solitude. Relatively intensive resource management activity could be required to mitigate impacts associated with high levels of visitor use and development. Although natural processes would be perpetuated wherever possible, a high degree of perturbation and human intrusion to the natural environment could continue to be evident.

Visitor Experience—This area provides for the primary experience of most visitors,

introducing them to many of the park's significant resources and presenting the primary park interpretive themes. Exhibits, films, and live presentations and publications distributed at the visitor center would be used to convey an understanding of the park and its natural and cultural resources. Interpretive trails and guided ranger tours would also be used in this area. Other orientation information would assist visitors in planning their stay in the park or region.

Access—Access to the developed area would be easy. This area could contain surfaced roads, and all roads could be accessed by two-wheel-drive vehicles. Pedestrian access along low- to high-standard trails could allow for visitor access to a variety of environments. Hardened trails could be provided in areas around the visitor center and in other areas of high use identified to give visitors an overview and better familiarity with park resources. Barrier-free design is provided in selected areas to permit visitors with physical impairments to experience representative park settings.

Natural Resource Management—The natural character of lands within this area is maintained to the greatest extent possible while accommodating high levels of use.

Vista site modifications could be used to improve views in this area. Visitors would be confined or directed to hardened sites, overlooks, and trails to limit resource impacts. Significant soil and vegetation impacts occurring near high-use sites could be mitigated through periodic closures, the use of natural materials to more clearly define use corridors, and increased enforcement techniques. Only native species would be used for revegetation. Landscaping with native species and natural materials, mowing (where appropriate), and selective removal and/or pruning of trees could also be done where appropriate or to enhance visitor safety.

Cultural Resource Management—Resources or sites designated as significant cultural features or cultural landscapes, or that have been nominated to the National Register of Historic Places will be preserved or restored depending on the degree of importance to the visitor's understanding of the purpose of the park or settlement and use of the region. All archeological sites would be protected from degradation.

Facilities—Major developments are confined to the developed area. Existing and potential modifications might include surfaced parking lots, transportation systems, maintenance facilities, administrative facilities, residential areas, water storage and sewage treatment facilities, as well as various other support facilities.

Maintenance—Maintenance activities could involve maintaining existing facilities (cleaning, painting, crack sealing, chip and sealing, striping, etc.), hardening sites, landscaping, providing for visitor convenience and comfort, protecting resources, irrigating, and restoring areas disturbed by human activities. Roads, buildings, signs, walks, interpretive displays, landscaping, and other facilities would be maintained on a regular basis. Power tools could be used for routine maintenance activities, and heavy equipment could be used for road and utility system repairs, development, and maintenance.

Resource Preservation

This management prescription includes the culturally significant Faraway Ranch and its associated infrastructure, which protects resources and serves visitors. Management accommodates visitors wishing to experience the park's superlative cultural resources on foot. Inter-party and NPS contacts are less frequent than those in developed or rural motorized prescriptions, and opportunities for solitude are less limited in this area than in others. Contacts are less frequent during midweek and off-season periods, when

opportunities for solitude and seclusion would be greater.

The landscape setting appears predominantly natural, although evidence of facilities that blend with surroundings could be present. Encounters with other people are occasional, and there is considerable evidence of human use. Other than the main road through the area, there is no motorized access.

Challenge to visitors in the prescription area is low. Moderate to extensive resource management activity is required to mitigate impacts associated with visitor-use levels. Naturalness is emphasized, but some human alterations and intrusions could be evident.

Visitor Experience—This area brings the visitor in direct contact with the park's cultural resources. The natural character of the area is maintained while providing interpretation and trail access for a small numbers of visitors. This area provides a sense of being immersed in a natural landscape and feels somewhat distant from most comforts and conveniences. The only facilities present are those of the Faraway Ranch.

A variety of on-site interpretive media is used to present the primary park themes and provide orientation and information. Rangers provide interpretation and information.

Access—Access range is easy. This area has one main road through it. Public access is restricted to low- to high-standard trails and limited to foot traffic. No bicycles or motorized vehicles are permitted. Aircraft use is allowed only in emergency situations.

Natural Resource Management—The natural environment along and away from the trail corridor is maintained to the extent possible with resource manipulation kept to a minimum. Emphasis is placed on minimizing human impacts on sensitive environments, cultural resources, habitats, and species. Management would reduce or minimize the impacts of nonrecreational uses. Resources

and uses would be carefully monitored, and if impairment occurred, mitigating actions such as temporary closures, revegetation, or restrictions on uses would be implemented as required.

Cultural Resource Management—Resources or sites that are designated as outstanding cultural features might be restored. Sites could be stabilized or restored to protect the integrity of the resource. Other features designated as outstanding cultural features or listed or eligible for listing on the National Register of Historic Places could be stabilized or restored. A cultural resource management plan (CRMP) has been prepared to address treatment of individual sites. Coordination with appropriate NPS staff and the state historic preservation officer is a part of the process.

Facilities—Only limited development is provided—major facilities would not be allowed.

Maintenance—Activities include protecting cultural resources from visitor use, maintaining/stabilizing cultural sites, and providing resource protection. Hardening of sites could occur as well as the restoration of areas disturbed by human activity. Facilities to provide for the convenience of visitors and their safety would be maintained to lesser standards than those found in the developed area of the park.

ALTERNATIVE A—NPS PROPOSAL

With the exceptions described below, the current level of development and interpretation and the pattern of visitor use is appropriate for Chiricahua and would be maintained.

Park Road—The historic significance and character of the road are its greatest values and would be protected under the proposal. With possible minor exceptions for safety, the existing width and alignment of the road would be permanently retained. Any road

work (drainage, replacement of base, etc.) would be done in such a way as to preserve the road's special character. Along the road margins, vegetation and trees would be cleared and/or removed in order to restore views of park and distant features from the road. In order to protect the roadside environment, pullouts, trailheads, and parking areas along the road would not be enlarged.

Bonita Picnic Area—In addition to a resting and sitting area, this place, which is the first encountered by the entering visitor, serves as the beginning of a foot trail that goes almost to the visitor center. The section from the picnic area to the Stafford Cabin would be made accessible to visitors with mobility impairments.

Faraway Ranch—After the cultural landscape report of the ranch grounds has been completed, NPS would select appropriate landscape restoration treatment for the main part of the ranch, including the appropriate vegetation and selected fences, corrals, and other structures. The Faraway historic vernacular landscape and CCC historic designed landscape areas would continue to be managed as historic landscape resources, and modifications for visitor safety and accessibility would be made so as to not reduce the integrity of these areas. The integrity of all landscape areas and features (historic vegetation, structures such as the Faraway pool, etc.) would be maintained, as would the integrity of the CCC area's design principles and use of materials. Overhead power and telephone lines would be removed and installed underground from the park entrance through the historic district and on to the visitor center, housing, and campground.

All ranch buildings open to the public and the trail along Bonita Creek from the picnic area to Stafford Cabin would be made accessible for visitors with mobility impairments.

Most administrative functions that now occupy historic Faraway Ranch structures, and the collections, would move to the proposed headquarters and administrative facility, and most of the vacated space would be available for visitor use and interpretation. The upper floor of the house would remain available to the interpreters as a work and storage space, and the garage would continue to be used as a maintenance facility. When administrative functions are removed from the guest house, the entire structure would be used as an employee residence in order to provide an on-site employee presence.

Under the proposal, the ranch house would be provided with climate control to protect the historic furnishings and with a fire suppression system to protect the house and its contents.

The current 10,000-gallon water tank is insufficient for fire control on the ranch. The ranch would be connected to the main visitor center/housing area water system. A standpipe would be installed near the parking lot for wildfire suppression.

When the water system is extended to the ranch parking area, consideration would be given to providing hollow conduits for the future installation of electric service, if needed.

The current two-way trail from the ranch parking area to the ranch house and Stafford Cabin would be enlarged to a loop trail, starting and ending at the parking area and representing the historic circulation more accurately.

Headquarters and Visitor Orientation

Facility —Under the proposal, a new combined headquarters/visitor orientation facility would be built outside the park. One park goal is for no further development to take place within the park. For the visitors to be properly oriented to the park's attractions, they should reach the headquarters/visitor orientation facility before entering the park, but not so far away from the boundary that

the connection to the park is lost. The headquarters/visitor orientation facility should also be located to intercept travelers coming from the other side of the Chiricahua Mountains on Pinery Canyon Road. Therefore, the recommended location is on route 181 as close to the park entrance as possible.

The new facility would house a complete visitor orientation function as well as the park administrative offices (including those now in the Faraway Ranch), sales, artifact collection space, library, archives, and herbarium. There would be parking, including adequate space for parking for an eventual shuttle terminus, should one be necessary, and an RV dump station. The structure would have approximately 9,000 square feet of space for visitor use, 4,000 square feet of office and administrative space, and 2,000 square feet for maintenance shops, equipment, and storage, for an approximate total of 15,000 square feet of indoor space. There would be parking for approximately 200 visitors' vehicles and 4,000 square feet of outdoor maintenance storage. The facility could include joint support function with the USFS. Also, the NPS would invite USFS to use the facility to introduce visitors to the Coronado National Forest and its recreational opportunities.

As an interim step, a short-term solution to the shortage of administrative space might be to lease or rent space in Willcox. Although not an ideal solution (it was rejected as a permanent solution), this would serve temporarily to allow removing the offices from their scattered locations in the park, consolidating most of them in one location, and making the Faraway Ranch space available for visitor use and interpretation.

Visitor Transportation System—The following discussion about a transportation system involves assumptions not yet finalized. A transportation study under contract with Parsons Brinckerhoff will provide information for implementation.

Final actions are dependent on the outcome of the study.

Two solutions to alleviate the parking problems would be implemented. In the short term, during the spring peak visitation season, a limited hiker shuttle would be implemented to take hikers to either Massai Point or Echo Canyon. At approximately 400 average daily visitors, the reconstructed Echo Canyon parking lot would reach capacity during the peak visitation periods. The limited hiker shuttle would be designed to keep long-term parking confined to the base of the monument, allowing more visitors to use the limited parking spaces at Massai Point and Echo Canyon. Hikers typically park at Massai Point or Echo Canyon for between three and five hours, and if the hiker were to take the shuttle instead, approximately four to eight additional sightseers would be able to park legally. Service would be similar to the existing hikers' shuttle, except for an established schedule. Service would run every two hours or other times as needed, allowing enough time for a ranger or a driver to operate the shuttle and pursue other activities. The shuttle system would need to have a capacity of approximately 50 people per day. This would eliminate 22 cars being parked long term at Massai Point and Echo Canyon. The cost of the transportation service could be paid for by a small surcharge to all visitors; volunteer enticements to hikers could be provided by waiving the entrance fee for those hikers who leave their cars at the base of the monument. Bicycle racks would be fitted onto the shuttle vehicles so that bicyclists could also be transported. To solve congestion problems for the long term, the hiker shuttle system would be doubled in size and capacity. The system would be based outside park boundaries, ideally near the new headquarters/visitor orientation facility. The enhanced hiker shuttle system would transport between 50 and 100 people per day, reducing parking demand at Massai Point and Echo Canyon by up to 44 long-term parked cars. This action would free up

spaces and allow the Massai Point parking lot to operate just below maximum capacity during peak visitation hours. Service would become hourly, meaning that one full-time person would be responsible for driving a shuttle during its hours of operation. The enhanced hiker shuttle system would need significant additional capacity, new types of transit vehicles, and a more stable base of operations outside the park. This system could be operated by a monument concessioner.

Housing/Maintenance Area—All maintenance functions and fuel supplies would be removed to the new headquarters/visitor orientation facility complex, and the vacated space would be used for fire equipment and emergency medical supplies and as a rescue cache and warehouse.

Because of the monument's distance from the nearest town (37 miles to Willcox), it is necessary to have certain park employees live in the park to provide resource protection, emergency repairs, and law enforcement. All but two of the housing units are in the residential area just above the visitor center. These include permanent and seasonal housing. Another unit occupies one-half of the "guest house" on the Faraway Ranch (the other half is used for office space). The "superintendent's house," which was acquired as part of an inholding property, is near Bonita Creek a short distance downstream from the visitor center.

All of the units are in good condition, and would be retained in their present uses. Because of the potential of flooding, when the "superintendent's house" has served its useful life, or is seriously damaged, it would be removed and the site returned to a natural condition.

There is at present no need for additional housing. As new housing authorities become available to the NPS, the need for in-park

housing and the potential for providing housing outside would be reconsidered.

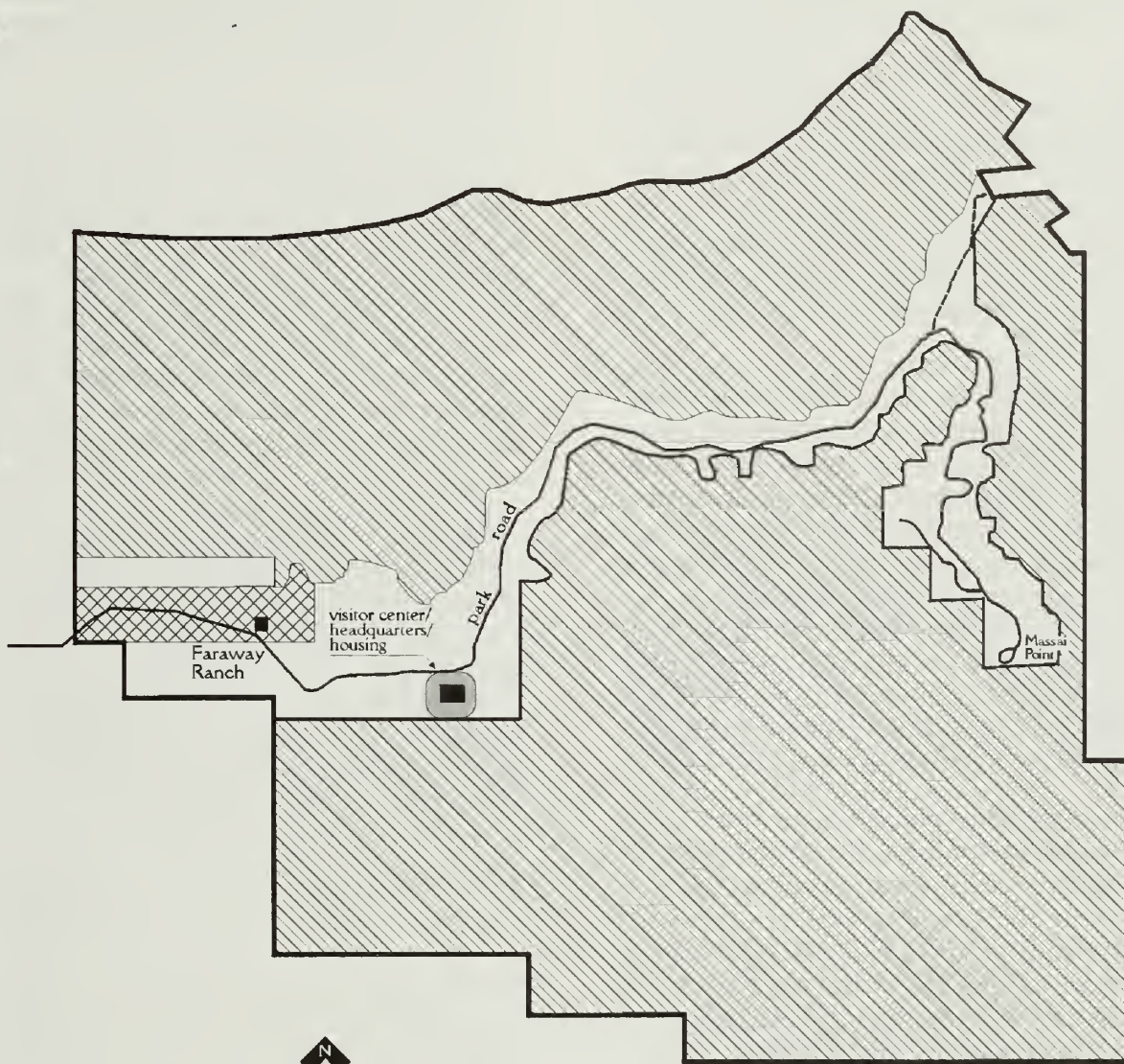
Boneyard—The boneyard and firearms training range impinges on the wilderness area. These inappropriate uses would be ended, and the areas would be restored to a natural appearance.





Campground—The flash flood risk of Bonita Creek affects campground users. The park would continue to operate the Bonita Creek campground in a safe and prudent manner by selective closures and flood threat awareness training for staff and visitors to Chiricahua. The selective closures of the campground would derive from use of the campground operation plan and be based upon seasonal and predicted weather conditions at the monument. Closures would occur on a day-by-day basis according to immediate observations by monument staff and weather forecasts of particular intensity and would be modified by any presaturation of the watershed and the season of the year. The campground operation plan would be developed by NPS as committed to in the draft floodplain management statement of findings accompanying this GMP (see appendix 3).

Because of the unsatisfied demand for camping (the campground is often full), NPS would cooperate with USFS, landowners, and businesses to provide additional camping opportunities outside the park. No NPS camping reservation system is anticipated because the park would work with neighbors to provide additional camping.

The campground septic system is often used to its capacity and would be replaced under the proposal.

There would be no recreation vehicle hookups or dump station added to the campground. The park would consider installing a dump station at the proposed headquarters/visitor orientation facility. For the interim a sign would be erected just inside the park entrance telling departing



-  primitive
-  cultural resource preservation
-  developed
-  motorized rural

Management Prescriptions

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campers to empty their holding tanks only at approved and legal dump stations, and directing them to the nearest ones.

Trails—Staff of the monument and national forest would jointly examine opportunities for connecting trails in order to provide hikers a better and more extensive choice of routes. This would also further disperse hikers in the backcountry. The dirt road to the King of Lead Mine would be converted to a trail if and when the property is added to the monument.

King of Lead Mine—The King of Lead Mine would be acquired, and the park boundary extended to include it. In the meantime, a sign would be installed at the mine property boundary warning hikers of the open mine, abandoned equipment, and so on. When the mine is acquired, it will be evaluated for historic significance. To protect visitors, the haul road would be closed to vehicular use, returned to a natural condition (except for a foot trail), and it would be administratively added to the surrounding wilderness area.

Sugarloaf—The parking area would be configured to add day-use amenities such as more picnic tables, group ramadas, and benches. These facilities would be provided in an attempt to shift some visitor use from the Echo Canyon and Massai Point parking areas. Limited vista clearing would also occur. The Sugarloaf road, overlook, trail, and fire tower would remain unchanged.

Echo Canyon Parking and Trailhead—Under the proposal, the parking lot would be reconfigured to alleviate peak parking problems. Limited vista clearing would also occur.

Massai Point—Under existing plans, the capacity of the summit parking area would be increased, but not its area, and vehicular flow would be improved. Trailheads would be made safer, and a new rest room would be installed. Vegetation around the parking area would be thinned and pruned to restore the views. Directional and informative signs

would be installed. All improvements would be done in such a way as to be compatible with the significant CCC landscape elements (to be determined by the cultural landscape inventory).

The small exhibit building, which occupies one of the best viewpoints in the monument, would continue to be used as an exhibit and interpretation facility. The exhibits would be modernized and would conform to an interpretive plan that is to be written for the summit area. A small outdoor sitting area and interpretive space would be built close to the building, and the summit would be made handicapped accessible from the parking area.

Wilderness—Except for the previously mentioned King of Lead haul road, the rehabilitation of the existing boneyard and firearms training range, and very minor trail realignments, no changes would be made to the wilderness area. A theme of the park interpretation program would be to inform people about what wilderness is, what its values are, and what is considered appropriate use for wilderness.

Potential Boundary Changes—The proposed headquarters/visitor orientation facility would be located at a place along route 181 yet to be selected. If a location contiguous with the park is selected, the park boundary could be extended to enclose it. If it is not contiguous, or very nearly so, the land could be leased or purchased by GSA but not included within the park boundary.

Fire Program—The fire program is growing, with more acreage being treated by prescribed burning in 1998 than ever in the past. The park has established a fire management officer position that will be filled in 1999, and it has begun a joint planning process with USFS for mutual burning and suppression activities on each other's lands. Implementing the proposed GMP would improve staff's ability to operate the program mainly by reducing

development, structures, operations, and traffic inside the boundaries. A new headquarters/visitor orientation facility located outside the park would put much of the staff, their vehicles, park files and exhibits, maintenance equipment, and so on in a safer place, for wildland fire considerations. The new facility would be built in an area with grassy fuels, which is in sharp contrast to the dense shrub and tree cover now surrounding the visitor center, administrative site, and housing.

The dead end road is a concern because the park has very few fire safety zones. Clearing roadsides and improving the park road would reduce travel time for fire fighters and would aid in using fire-fighting equipment as well as moving visitors and employees away from fire danger. Parking lots can be used as fire safety zones if absolutely necessary, so work to clear brush and improve traffic flow is critical. The campground, with its location and access on a narrow one-way, dead end road, is another fire danger concern. Because the campground would not be enlarged, staff could work with the current setup and continue to improve the situation by creating fire safety zones, reducing fuels, and clearing roadsides.

Upgrading the water system would improve fire suppression capabilities for structures, especially historic buildings. Improving accessibility would also help in evacuating visitors from buildings, if necessary.

An ongoing vegetation investigation is showing historically less dense vegetation with more varied composition and structure. Fire would be used to restore historic vegetation conditions. Cultural landscape studies could include prescribed fire as a tool. Because most cultural landscapes in the park would include historic structures, fuel treatment would reduce hazards and enhance suppression efforts.

The joint planning with USFS would support using fire in the wilderness. Additionally,

focusing park interpretation on wilderness, including natural processes such as fire and flooding, would lead to better public understanding and acceptance.

Commercial Services—Commercial horseback, hiking, and tour bus services originating outside the park would continue. The park would encourage others, including private business and USFS, to provide recreation vehicle and tent campground and camping supply stores outside the park.

Other activities could be added if they enhance the visitor experience, are appropriate for the park, and are consistent with resource protection prescriptions. Some of these activities might include bicycle tours and shuttle services to alleviate crowding and prevent traffic jams.

Activities would be evaluated primarily on the need for protection of resources, goals established for the visitor experience, and the need to reduce crowding and visitor conflicts. When problems are identified, the park would conduct feasibility studies to determine if proposed activities are necessary and practical and then determine the best way to provide the services.

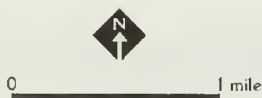
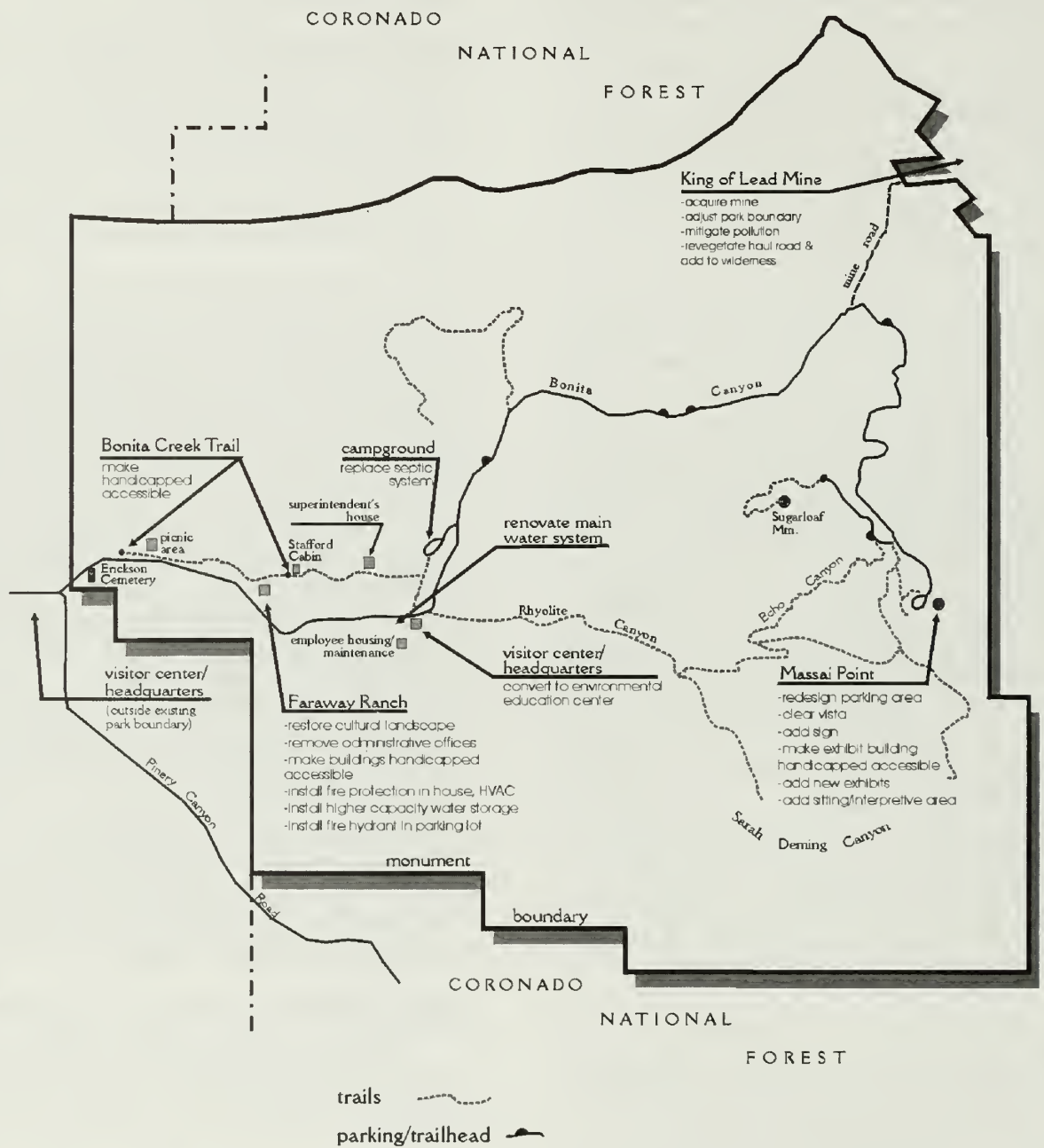
Water System—The three separate water systems that serve the visitor center, employee housing, and campground do not meet public health standards. They would be replaced or modified as needed.

Operational Costs—Operational costs total \$233,500 and are broken down in Table 1.

Development Costs—Development costs total \$5,881,000 and are broken down in Table 2.

ALTERNATIVE B

This alternative provides for a traditional park experience with increased personal services and a small number of facility enhancements. With the exceptions described below, the



Proposed Plan

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current level of development and interpretation and the pattern of visitor use is appropriate for Chiricahua and would be maintained. The application of management prescriptions would be exactly the same as under the proposal.

Park Road—Under this alternative, the historic significance and character of the road would be protected, but alignment could be selectively altered. Most of the road's special character would be maintained, but more alterations of the vegetation would be likely. Some minor enlargements and realignments could occur.

Bonita Picnic Area—This area would be treated the same as it would be under the Proposal.

Faraway Ranch—Treatments would be the same as under the proposal except that the focus of efforts would be centered on the historic structures. There would be little to no modification of the landscape.

Overhead power and telephone lines would be removed and installed underground in the immediate vicinity of the structures.

The trail along Bonita Creek, from the picnic area to Stafford Cabin, would be accessible for visitors with mobility impairments.

There would be limited access to selected buildings by the public. Some administrative functions would continue in the area. Climate control would be used to protect the historic furnishings. A fire suppression system would be used to protect the house and contents.

The water system would connect to the main visitor center/housing area. A standpipe would be installed near the parking lot for wildfire suppression, and the water system would be extended to the ranch parking area. The two-way trail would be enlarged into a loop trail.

Headquarters and Visitor Orientation Facility—Under this alternative, administrative facilities would only be built

outside the park and no new visitor orientation facility would be constructed. There would be no further development in the park and no additional services for RVs.

Short-term lease or rent space for administrative services would be explored in Willcox, and a joint support function would be considered with the U.S. Forest Service.

Visitor Transportation System—Options under this alternative are the same as for the proposal.

Housing/Maintenance Area—Under this alternative there would be no changes in current operation except that

- 1) all housing units would be retained in present use;
- 2) the superintendent's house eventually would be removed and the site returned to a natural condition and
- 3) the need for in-park housing and potential for providing housing outside the park would both be considered.

Boneyard—The boneyard and firearms training range impinges on the wilderness area. These inappropriate uses would be ended, and the areas would be restored to a natural appearance.

Campground—Treatment for this area would be the same as described under the proposal.

Trails—Treatment of trails would be the same as described for the proposal.

King of Lead Mine—Treatment of the mine would be the same as it would be under the proposal.

Sugarloaf—Under this alternative there would be no change.

Echo Canyon Parking and Trailhead—Under this alternative there would be no change.

Massai Point—Treatment of the area would be the same as described under the proposal.

Wilderness—Treatment of wilderness would be the same as described for the proposal.

Potential Boundary Changes—Under this alternative there would be no changes to park boundaries.

Fire Program—The fire program would be the same as described under the proposal, except that no improvements through reductions of development would take place. Facilities outside the park would be confined to administrative functions with little or no support to the fire program.

Commercial Services—Commercial services would be the same as for the proposal.

Water System—Water systems would be upgraded to meet public health standards.

Operational Costs—Operational costs total \$186,500 and are broken down in Table 1.

Development Costs—Development costs total \$3,681,000 and are broken down in Table 2.

NO-ACTION ALTERNATIVE

All environmental documents are required to analyze at least two alternatives, a proposal and a no-action alternative. Under the no-action alternative, existing conditions as described below would continue at Chiricahua NM.

Park Road—With possible minor exceptions for safety, the existing width and alignment of the road would be permanently retained. Pullouts, trailheads, and parking areas along the road would not be enlarged.

Bonita Picnic Area—Existing development would be retained.

Faraway Ranch—The only landscape treatment would be continued maintenance and fire protection. The fences, corrals, and outbuildings would not be restored to their historic appearance, and buildings would not be made accessible. In the absence of a new

headquarters/visitor orientation facility, administrative functions would remain in the ranch buildings. Lacking the proposed connection of the ranch to the main park water system, the ranch house and its contents would remain at risk of fire. The collections in the house would remain unprotected by a climate control system. Visitors would continue to approach and leave the main buildings by the existing two-way trail.

Visitor Center—In the absence of a new headquarters/visitor orientation facility, the existing conditions of crowded working conditions, inadequate parking, and inadequate interpretive space would continue.

Housing/Maintenance Area—Maintenance activities would remain in the present location, so that space would not be available for other uses. The housing area would be the same as described under the proposal.

Boneyard—This inconsistent use of the wilderness area would remain.

Campground—The existing campground would be retained, and the septic system would not be replaced.

Trails—Existing trails would be retained in the no-action alternative.

King of Lead Mine—No further steps would be taken with the state and the mine owner to mitigate the mine pollution and to acquire the property. The haul road would not be added to the surrounding wilderness. A warning sign would be erected.

Sugarloaf—The Sugarloaf road, overlook area, trail, and fire tower would remain unchanged.

Echo Canyon Parking and Trailhead—The overlook, parking, and trailhead area would remain unchanged.

Massai Point—Under existing plans, the capacity (but not the area) of the summit

parking area would be increased and vehicular flow would be improved.

Trailheads would be made safer, and a new rest room would be installed. Vegetation around the parking area would be thinned and pruned to restore the views. Directional and informative signs would be installed.

The small exhibit building, which occupies one of the best viewpoints in the monument, would continue to be used as an exhibit and interpretation facility. The exhibits would be modernized to conform to an interpretive plan to be written for the summit area. A small outdoor sitting area and interpretive space would be built close to the building, and the summit would be made handicapped accessible from the parking area.

Wilderness Area—There would be no changes in the wilderness area.

Potential Boundary Changes—There would be no changes in the park's boundary.

Fire Program—Some of the fire program would be the same in this alternative as with the proposal. The fire management officer position would be filled, and the park would continue joint planning with USFS. Acreage burned would increase to reduce fuels and to restore fire as an ecosystem process.

The difference is that fire hazards and safety risks would be higher for people and structures despite fire planning for suppression. Facilities, housing, campgrounds, traffic flows, and so on would remain in the current state, which hinders fire management operations. Roads and parking lots would not be cleared or improved, which increases the risk of entrapment and delays response time for fire fighters and equipment. Inadequate water systems do not provide for suppression capabilities for historic structures or other facilities. Cultural landscape information would not be available for restoring historic scenes. Lack of interpretation focus on wilderness would affect public understanding and appreciation

of natural forces, such as fire and flooding, as well as of land-use ethics.

Commercial Services—Commercial horseback, hiking, and tour bus services originating outside the park would continue.

Water System—The three separate water systems that serve the visitor center, employee housing, and campground do not meet public health standards. They would be replaced or modified as needed.

Operational Costs—Costs are already reflected in the park's annual operating budget.

Development Costs—There are no development costs associated with this alternative.

ALTERNATIVES CONSIDERED BUT REJECTED

Visitor Center

Enlarge Existing Structure—The building could possibly be enlarged to provide the necessary space, but the parking area—whose small size is one of the major problems already—cannot be enlarged without great damage to Rhyolite Canyon Creek and the surrounding natural area. Therefore, the existing location cannot serve the increasing need for visitor center and headquarters space.

Joint NPS-FS Visitor Center—Consideration was given to a visitor center jointly built and run by the NPS and USFS. Because the primary Coronado National Forest activity would remain on the east side of the mountains, the needs of the USFS could be met by having some space in the NPS facility to present Coronado NF information.

Coronado National Forest Location—A location on the national forest for the visitor center was considered, but potential sites in Pinery Canyon were poorly located for arriving visitors.

Camping at the New Visitor Center—

Consideration was given to the idea of additional development at the proposed visitor center, such as camping. Although camping at the monument is an attractive and desirable experience for visitors, the development and management of additional camping outside the current monument boundary by NPS is not a part of the legislative purpose of the monument. Therefore, the only function that NPS would have outside the park is the headquarters/visitor orientation facility itself. It was felt that private business could better provide any camping opportunities.

Retain Administrative Use of Existing

Structure—Thought was given to keeping some of the administrative offices in the existing visitor center, but the primary goal is to end the inefficient separation of the staff in more than one location.

Willcox Location—

Another consideration was to move most administrative offices and staff to rented offices in Willcox, but, except for a possible short-term emergency need, this alternative was discarded on the basis of impracticality and inefficiency.

Build New Visitor Center Inside Park—

A guiding principle for this GMP is that no additional park land would be used for development. Even if this weren't the case, because of the extent of the Faraway historic district, the sensitive and scenic character of the lower Bonita Creek, and the extent of the 100-year floodplain, there is no practical location between the park entrance and the existing visitor center for a new visitor center.

Campground

Enlarge Campground—Two of the campground's most popular qualities are its small size and its rustic, natural surroundings. Both of these qualities would be sacrificed if the facility were to be enlarged.

Convert to Picnic Area—The idea of converting the campground to a picnic area

was rejected because camping is accepted as an important part of many visitors' experience in the park.

Close the Campground—The team considered closing the campground because of the recognized flood potential. Flooding in Bonita Canyon is likely only under two conditions: after a series of storms has thoroughly saturated the watershed and another storm then triggers a flood; or during a prolonged storm that does the same thing. In either case the park would be forewarned and be able to take protective action. The park plans to continue operating the existing 25-site campground in the floodplain with selective closure options described in an operational plan that significantly lowers the threat to human life and property within the campground area. A campground operating plan would be prepared by NPS to keep park staff and visitors aware of the flooding risk and potential.

Campground in Pinery Canyon—It was suggested that land be acquired in Pinery Canyon for an NPS campground. If it is determined that there is a need for a campground outside the park, either the national forest or a private business would be better able to provide it.

Widen Road and Increase Parking

The road is a historic structure (built by the CCC) and also has a special esthetic appeal to visitors. Any redesign of the road, or the construction of more parking spaces along it, would not only change its character but would cause considerable physical damage to the adjacent roadsides. Rather than alter one of the most distinctive features of the park, transportation and parking problems should be solved by other means, such as limiting the size and/or number of vehicles and establishing a shuttle system.

Table 1—Operating Expenses

Staffing		
7 day/wk coverage of headquarters/visitor orientation facility or administrative facility		
Description	Alternative A	Alternative B
2 FTE GS-9 ranger interpretive emphasis	0	\$96,000
1 FTE GS-9 ranger	\$48,000	0
2 FTE GS-5 visitor use assistant	\$70,000	0
1 FTE WG-5 custodian	\$35,000	0
.5 FTE WG-5 custodian	\$17,500	\$17,500
Other Expenses		
Utilities	\$12,000	\$6,000
Vehicle	\$ 6,000	\$12,000
Interpretive material	\$10,000	\$20,000
Supplies and materials	\$15,000	\$15,000
Travel and training	\$ 5,000	\$ 5,000
Equipment	\$15,000	\$15,000
Total Annual	\$233,500	\$186,500

Table 2—Development Cost Estimates

Description	Alternative A	Alternative B
Headquarters/visitor orientation facility	\$3,510,000	
Administrative Facility		\$1,750,000
Climate control (HVAC) Faraway Ranch house	\$140,000	\$140,000
Replace campground septic system	\$65,000	\$65,000
Close King of Lead Mine road	\$20,000	\$20,000
Replace main water system	\$910,000	\$910,000
Connect ranch to main water system	\$60,000	\$60,000
<i>Subtotal gross construction cost</i>	<i>\$4,705,000</i>	<i>\$2,945,000</i>
<i>Project planning & advanced planning</i>	<i>\$1,176,000</i>	<i>\$736,000</i>
Total Costs	\$5,881,000	\$3,681,000

Table 3—Comparison of Alternatives

	Alternative A—NPS Proposal	Alternative B	No Action
General Description	<ul style="list-style-type: none"> + Provides a traditional park experience with limited development inside the park + Current level of development and interpretation and the pattern of visitor use would be maintained 	<ul style="list-style-type: none"> + Provides a traditional park experience with increased personal services + Same as proposal 	<ul style="list-style-type: none"> + Existing conditions would continue
Park Road	<ul style="list-style-type: none"> + Historic significance and character protected + Existing width and alignment permanently retained + Any road work preserves road's special character + Vegetation/trees cleared to restore views and distant features + Pullouts, trailheads, and parking areas not enlarged 	<ul style="list-style-type: none"> + Same as proposal + Alignment selectively altered + Most of the road's special character would be maintained + Same as proposal, more alterations likely + Some minor enlargements and realignments could occur 	<ul style="list-style-type: none"> + Existing width and alignment of the road permanently retained + Pullouts, trailheads, and parking areas along the road not enlarged
Bonita	<ul style="list-style-type: none"> + Serves as start of foot trail + Section from the picnic area to Stafford Cabin made accessible to visitors with mobility impairments 	<ul style="list-style-type: none"> + Same as proposal 	<ul style="list-style-type: none"> + Existing development would be retained
Faraway Ranch	<ul style="list-style-type: none"> + Appropriate landscape restoration treatment for the main ranch + Faraway historic vernacular landscape and CCC historic designed landscape areas managed as historic landscape + Modifications would not reduce the integrity of resource + Integrity of all landscape areas and features (historic vegetation, structures such as the Faraway pool, etc.) maintained + Integrity of the CCC area's design principles and use of materials maintained + Overhead power and telephone lines removed and installed underground + Ranch buildings open to the public + Trail along Bonita Creek, from the picnic area to Stafford Cabin, accessible for visitors with mobility impairments + Most administrative functions would move to proposed visitor center + Most vacated space available for visitor use and interpretation + Upper floor, work and storage space, and the garage available to the interpreters 	<ul style="list-style-type: none"> + Same as proposal, but the focus of most efforts would be on historic structures and less on the historic landscape + Little to no modification of the landscape + Underground only in the immediate vicinity of the structures + Limited access to selected buildings + Same as proposal + Some administrative functions would continue + Same as no action + Same as no action 	<ul style="list-style-type: none"> + Only landscape treatment maintenance and fire protection + Fences, corrals, and outbuildings not restored or made accessible + Ranch house/contents remain at risk of fire + The collections remain unprotected by a climate control system + Visitors continue approach by existing two-way trail + Administrative functions remain in ranch buildings

Table 3—Comparison of Alternatives

	Alternative A—NPS Proposal	Alternative B	No Action
Faraway Ranch (Continued)	<ul style="list-style-type: none"> + Once administrative functions removed from the guest house, structure used as employee residence + Climate control to protect the historic furnishings + Fire suppression system to protect the house and contents + Connect to main visitor center/housing area water system + Standpipe installed near the parking lot for wildfire suppression + Water system extended to the ranch parking area + Two-way trail enlarged to a loop trail 	<ul style="list-style-type: none"> + Same as no action + Same as proposal + Same as proposal + Same as proposal + Same as proposal + Same as no action + Same as proposal 	
Headquarters/Visitor Orientation Facility Outside	<ul style="list-style-type: none"> + New combined headquarters/ visitor orientation facility outside park + No further development within the park + New facility houses complete visitor orientation function and park administrative offices + Parking includes adequate space for shuttle terminus and RV dump station + Facility may include joint support function with the USFS + Short-term lease or rent space in Willcox for administrative functions 	<ul style="list-style-type: none"> + Administrative facilities built outside park + Same as proposal + No visitor orientation function outside of park + No services + Same as proposal + Same as proposal 	<ul style="list-style-type: none"> + Existing crowded working conditions, inadequate parking, and inadequate interpretive space would continue
Visitor Transportation System	<ul style="list-style-type: none"> + Transportation study under contract with Parsons Brinckerhoff to provide information for implementation. <i>Final actions are dependent on the outcome of the study</i> + Short-term peak—a limited hiker shuttle to either Massai Point or Echo Canyon - Limited hiker shuttle designed to keep long-term parking confined to monument base - Cost of transportation service paid for by surcharge - Bicycle racks fitted onto the shuttle vehicles so that bicyclists could also be transported + Long-term plan—the hiker shuttle system doubled in size and capacity - Based outside park boundaries - Free up spaces/allow Massai Point to operate maximum capacity during peak visitation hours - New transit vehicles/stable base—operated by a monument concessioner 	<ul style="list-style-type: none"> + Same as proposal 	<ul style="list-style-type: none"> + No transportation study or system planned

Table 3—Comparison of Alternatives

	Alternative A—NPS Proposal	Alternative B	No Action
Housing/Maintenance Area	<ul style="list-style-type: none"> + Maintenance functions and fuel supplies removed to the new headquarters/visitor orientation facility complex + Vacated space used for fire equipment, emergency medical supplies, rescue cache, and a warehouse + Provide added resource protection, emergency repairs, and law enforcement because of relocation + All housing units retained in present use + Superintendent's house eventually removed/site returned to natural condition. + Need for in-park housing/ the potential for providing housing outside the park considered 	<ul style="list-style-type: none"> + Same as no action + Same as no action + Same as no action + Same as proposal + Same as proposal + Same as proposal 	<ul style="list-style-type: none"> + Maintenance activities remain in present location + Housing area would be same as for proposal
Boneyard	<ul style="list-style-type: none"> + Boneyard/firearms training range use ended / areas restored to a natural condition 	<ul style="list-style-type: none"> + Same as proposal 	<ul style="list-style-type: none"> + Inconsistent use of the wilderness area would continue
Campground	<ul style="list-style-type: none"> + Operations continue in safe and prudent manner by selective closures and flood threat awareness training for staff/visitors + Campground operation plan developed. + Septic system replaced + No recreation vehicle hookups or dump station added 	<ul style="list-style-type: none"> + Same as proposal 	<ul style="list-style-type: none"> + The existing campground would be retained, and the septic system would not be replaced
Trails	<ul style="list-style-type: none"> + NPS & USFS jointly examine opportunities for connecting trails + The dirt road to the King of Lead Mine converted to a trail if property is added to monument 	<ul style="list-style-type: none"> + Same as proposal 	<ul style="list-style-type: none"> + Existing trails retained
King of Lead Mine	<ul style="list-style-type: none"> + The King of Lead Mine acquired, and the park boundary extended if appropriate + Haul road closed to vehicular use, returned to a natural condition (except for a foot trail), administratively added to the surrounding wilderness area 	<ul style="list-style-type: none"> + Same as proposal 	<ul style="list-style-type: none"> + No further steps with state/mine owner to mitigate mine pollution/acquire the property + Haul road not added to surrounding wilderness + Warning sign erected
Sugarloaf	<ul style="list-style-type: none"> + Parking area configured to add day use + Limited vista clearing + The Sugarloaf road, overlook, trail, and fire tower remain unchanged 	<ul style="list-style-type: none"> + Same as no action 	<ul style="list-style-type: none"> + Sugarloaf road, overlook area, trail, and fire tower remain unchanged
Echo Canyon	<ul style="list-style-type: none"> + Parking lot reconfigured to alleviate peak parking problems + Limited vista clearing 	<ul style="list-style-type: none"> + Same as no action 	<ul style="list-style-type: none"> + Overlook, parking, and trail head area unchanged

Table 3—Comparison of Alternatives

	Alternative A—NPS Proposal	Alternative B	No Action
Massai Point	<ul style="list-style-type: none"> + Parking area vehicular flow improved + Trailheads made safer, and a new rest room installed + Vegetation around parking thinned / pruned to restore views + Directional and informative signs installed + Improvements compatible with CCC landscape + Exhibit building use continues + Exhibits modernized to conform to interpretive plan + Outdoor sitting area and interpretive space built + Summit made handicapped accessible 	+ Same as proposal	+ No change
Wilderness	<ul style="list-style-type: none"> + Parts of King of Lead haul road administratively added + Rehabilitation of boneyard and firearms training range + Minor trail realignments + Increased emphasis on wilderness education 	+ Same as proposal	+ No change in current operations
Boundary	<ul style="list-style-type: none"> + No boundary changes + Headquarters/visitor orientation facility along route 	+ No boundary changes	No boundary changes
Fire Program	<ul style="list-style-type: none"> + Improvements by reduction in development, structures, operations, and traffic inside the boundaries + New headquarters/visitor orientation facility outside the park and support facilities safe from wildland fire + Water system improvements add fire suppression capabilities + Fire used to restore historic vegetation conditions + Joint planning with USFS to support using fire in the wilderness + Increased emphasis is on wilderness interpretation and education 	<ul style="list-style-type: none"> + No change + No change + Same as proposal + Same as proposal + Same as proposal + Same as proposal 	<ul style="list-style-type: none"> + Program focus the same but less fire program than action alternatives + Fire management officer position filled/joint USFS planning continues + Acreage burned increased to reduce fuels/restore fire ecosystem process + Fire hazards and safety risks would be higher for people and structures + Facilities, housing, campgrounds, traffic flows, etc., unchanged + Roads and parking lots not cleared or improved + Inadequate water for suppression remains + Cultural landscape information not available for restoring historic scenes + Interpretation unchanged

Table 3—Comparison of Alternatives

	Alternative A—NPS Proposal	Alternative B	No Action
Commercial Services	<ul style="list-style-type: none"> + Commercial horseback, hiking, and tour bus services outside the park continue + Emphasis on encouraging others such as private business and USFS to camping opportunities + Activities are necessary and appropriate for the park would be consistent with visitor experience and resource 	+ Same as proposal	+ Commercial horseback, hiking, and tour bus services originating outside park continues
Water System	+ Water systems upgraded to meet public health standards	+ Same as proposal	+ Water systems not meeting public health standards replaced or modified as needed
Operational Costs	+ \$233,500 Additional (See Table 1 comparison)	+ \$186,500 (See Table 1 comparison)	+ Current budget
Development Costs	+ \$5.8 million (See Table 2 comparison)	+ \$3.6 Million (See Table 2 comparison)	+ None

Table 4—Comparison of Environmental Impacts

	Alternative A—NPS Proposal	Alternative B	No-Action
Visitor Experience	<ul style="list-style-type: none"> + Slight vegetation clearing/modification of trail to Stafford Cabin + Improve visitor experience, accessibility, and safety + Visitor experience at Faraway Ranch enhanced—improvements in building accessibility <ul style="list-style-type: none"> - More historically accurate landscape depiction - Improved preservation maintenance - Increased climate control—better display original museum collection objects - Restoration of historic footpath circulation—more accurate and effective experience + Old visitor center conversion to environmental ed. center increases capability to provide quality environmental ed. programs + New headquarters/visitor orientation facility improves visitor orientation/removes scattered facilities/operations reducing noise and traffic + Expansion of hiker shuttle/long-term transportation system alleviates parking problems + Reconfigure of Echo Canyon/Massai Point increases parking by 50 spaces, reducing congestion 	<ul style="list-style-type: none"> + Little to no clearing/modification of trail to Stafford Cabin + Improve visitor experience, accessibility, and safety + Visitor experience at Faraway Ranch improved—improvements in building accessibility <ul style="list-style-type: none"> - Less historically accurate landscape depiction - Improved preservation maintenance - Increased climate control—better display original museum collection objects - Slight improvements to historic footpath circulation + Continued inadequate visitor orientation function (see description in no-action) + Expansion of hiker shuttle/long-term transportation system alleviates parking problems 	<ul style="list-style-type: none"> + Retention of narrow width/lack of shoulders/tight turn radii, the road remains inadequate for large recreation vehicles /increased bus traffic/congestion. + Very limited parking at major points of interest, decrease visitors' ability to see park + Park boneyard has negative effect on visitor experience—air quality, noise, and traffic + Crowded conditions remain + Depending on time of year and day of the week, the campground can be very quiet or completely filled and boisterous. + Visitors who use the campground generally report an outstanding camping experience + Wildlife and wilderness experience not retained
Archeological Resources	<ul style="list-style-type: none"> + New Headquarters/visitor orientation facility beneficial + Inventory increase knowledge of historic/prehistoric/better interpretation + Mitigation <ul style="list-style-type: none"> - King of Lead Mine acquired—archeologically inventoried/evaluated - replace campground septic system - extend the water system - enlarging the two-way trail - restore "boneyard" to its natural + Archeological survey \$106 <ul style="list-style-type: none"> - Minimizes intrusions on viewsheds/benefits experience - Less-developed/historic views + At Faraway Ranch <ul style="list-style-type: none"> - reduce the administrative use - rehab areas/provide additional interpretation/opportunities, improve building conditions 	<ul style="list-style-type: none"> + Inventory increase knowledge of historic/prehistoric/better interpretation + Mitigation <ul style="list-style-type: none"> - King of Lead Mine acquired—archeologically inventoried/evaluated - replace campground septic system - extend the water system - enlarging the two-way trail - restore "boneyard" to its natural + Archeological survey \$106 <ul style="list-style-type: none"> - Minimizes intrusions on viewsheds/benefits experience + At Faraway Ranch <ul style="list-style-type: none"> - reduce the administrative use - rehab areas/provide additional interpretation/opportunities, improve building conditions 	<ul style="list-style-type: none"> + Most known archeological resources not impacted + The boneyard not inventoried, continued use may adversely affect possible sites + Mitigation <ul style="list-style-type: none"> - Archeological inventory and \$106 consultation required for the no-action alternative - The Faraway historic vernacular landscape/CCC historic managed historic landscape resources - Maintaining integrity/Faraway landscape areas/features results in no adverse effect on landscape - Integrity CCC area design principles/ use of materials maintained, preserving resources/resulting in no adverse effect

Table 4—Comparison of Environmental Impacts

Alternative A—NPS Proposal	Alternative B	No-Action
<p>+ Buildings/facilities accessible to mobility impaired</p> <p>+ Enable people w/ mobility impairments to experience the interiors</p> <p>+ Faraway historic vernacular landscape/ CCC historic landscape</p> <ul style="list-style-type: none"> - Modifications for visitor safety and accessibility made not to reduce the integrity - Maintain the integrity—no adverse effect on this landscape <p>+ Integrity CCC areas design principles / use of materials preserving resources -- no adverse effect</p> <ul style="list-style-type: none"> - Circulation pattern rearranged—more historically accurate and attractive - Several CCC structures—significant changes in use - Changes result in reduced developmental pressure on the buildings and the surrounding cultural landscape - Less intensive use of buildings - Continuing preservation maintenance - Prolong building life <p>+ The campground area</p> <ul style="list-style-type: none"> - Handicapped accessibility improved - Utilities underground - Handicapped accessibility modifications/no adverse effect on historic structures or cultural landscape - Underground utilities placement beneficial on setting - No adverse effect on buildings or structures <p>+ CCC trails maintained—no adverse effect on integrity CCC Massai Point</p> <ul style="list-style-type: none"> - Road repaved—no widening/straightening to ensure safety - Vista clearing expose rock formations restores vistas/preserves road character/original experience - Massai Point exhibit building handicapped accessible—enable mobility impaired visitors to use vistas - Handicapped accessible trail to be built effect on cultural landscape minimal - Ramp necessary; constructed in a reversible manner <p>+ Impacts of the primary park road same as no-action</p> <ul style="list-style-type: none"> - Current use limited/parking spaces 	<p>+ Buildings/facilities accessible to mobility impaired</p> <p>+ Enable people w/ mobility impairments to experience the interiors</p> <p>+ Faraway historic vernacular landscape/ CCC historic landscape</p> <ul style="list-style-type: none"> - Modifications for visitor safety and accessibility made not to reduce the integrity - Maintain the integrity—no adverse effect on this landscape <p>+ Integrity CCC areas design principles/ use of materials preserving resources—no adverse effect</p> <ul style="list-style-type: none"> - Several CCC structures—significant changes in use - Changes result in reduced developmental pressure on the buildings - Less intensive use of buildings - Continuing preservation maintenance - Prolong building life <p>+ The campground area</p> <ul style="list-style-type: none"> - Handicapped accessibility improved - Utilities underground - Handicapped accessibility modifications/no adverse effect on historic structures or cultural landscape - Underground utilities placement beneficial on setting - No adverse effect on buildings or structures <p>+ CCC trails maintained—no adverse effect on integrity CCC Massai Point</p> <ul style="list-style-type: none"> - Road repaved—no widening/straightening ensure safety. - Vista clearing expose rock formations restores vistas/preserves road character/original experience - Massai Point exhibit building handicapped accessible—enable mobility impaired visitors to use vistas - Handicapped accessible trail to be built effect on cultural landscape minimal - Ramp necessary; constructed in a reversible manner <p>+ Impacts of the primary park road same as no-action</p> <ul style="list-style-type: none"> - Current use limited/parking spaces 	<p>+ Without restoration of landscape/structures used to explain condition</p> <p>+ Perpetuate divergence of condition...some in good/others in poor</p> <p>+ Continuing loss of integrity for some resources</p> <p>+ Continue use of several historic structures for inappropriate purposes</p> <p>+ Structures do not meet collection storage/office space needs/use prevents appropriate interpretation</p> <p>+ Continued overuse of visitor center/headquarters area reduce the integrity</p> <p>+ Continued incremental alteration of these historic structures</p> <p>+ Inevitable incremental changes, cumulatively over time, contribute to the loss of the structures and their settings, integrity</p> <p>+ No effect on the physical integrity of the CCC built Massai Point road or trails</p> <p>+ Vehicle congestion not addressed/ diminished visitor experience</p> <p>+ Alterations from natural erosion and vegetation patterns along the road corridor—exotic plants evident</p> <ul style="list-style-type: none"> - 7 to 67 animals killed per year since 1995 attributed to condition - Potential to disturb wildlife and visitors increased - Moderate localized negative impact <p>+ Presence, preservation, and use of the Faraway Ranch historic district/several negative impacts to the natural area:</p> <ul style="list-style-type: none"> - Visitor use disrupts wildlife; - Picnicking, employee presence, and maintenance of fruit trees and a windmill provide nonnatural sources of food and water for wildlife - Preservation of historic structures/fire prevention eliminates fire created natural ecosystems - Continued inaccurate historical scene - More difficult to control exotics/ wildland fire - Native wildlife—a less natural habitat - Slight incremental negative impact to the surface hydrology/heavier vegetation contributes to lessening surface creek flow - Adaptive historic structures use invites rodents, requires intensive pest management

Table 4—Comparison of Environmental Impacts

	Alternative A—NPS Proposal	Alternative B	No-Action
Cultural Landscape and Historic Resources (cont.)	<ul style="list-style-type: none"> - Vista clearing minimal effect on habitat for wildlife/localized—disturb wildlife—natural sounds - Reduces occupation of several historic structures - Vegetation management program improves natural landscape 	<ul style="list-style-type: none"> - Reduces occupation of several historic structures 	
Long-Term Health of Ecosystems	<ul style="list-style-type: none"> + Shuttle—creates the potential greater negative by concentrating use: human impacts to natural ecosystem <ul style="list-style-type: none"> - Shuttle to reduce total number of vehicles/positive effect for wildlife, air quality, and the ability to hear natural sounds - Current use is limited by parking - Shuttle system deliver more visitors creating greater negative human impacts to natural ecosystem + Eliminating offices/collection storage at Faraway Ranch—reduces occupation of several historic structures/staff traffic, parking, food presence + Vegetation management: <ul style="list-style-type: none"> - More consistent natural vegetative landscape - Depend on historic landscape studies reduce number of encroaching trees - More accurate historical scene assist with control of the 65 exotics - Provide more options for reducing hazard fuels/restoring natural fire regime - Reduction in exotic plants favor native wildlife—increased native food source/habitat - Soils and natural sounds unaffected - Impacts are local and relatively moderate in severity + Rearranging circulation—reduce harmful foot traffic/eliminating social trails + Relocation boneyard—eliminate negative environmental/visitor impacts—relocation outside monument provide most benefit + New headquarters/visitor orientation facility/administrative facility outside monument—positive environmental effects + Removal maintenance operation - Reduce negative environmental effects. 	<ul style="list-style-type: none"> + Shuttle—creates the potential greater negative by concentrating use: human impacts to natural ecosystem <ul style="list-style-type: none"> - Shuttle to reduce total number of vehicles/positive effect for wildlife, air quality, and the ability to hear natural sounds - Current use is limited by parking - Shuttle system deliver more visitors creating greater negative human impacts to natural ecosystem + Eliminating offices/collection storage at Faraway Ranch—reduces occupation of several historic structures/staff traffic, parking, food presence + Rearranging circulation—reduce harmful foot traffic/eliminating social trails + Relocation boneyard—eliminate negative environmental/visitor impacts—relocation outside monument provide most benefit + Removal maintenance operation - Reduce negative environmental effects 	<ul style="list-style-type: none"> + Lawn maintenance/ranch house requires regular water applications—maintain Faraway landscape according to its historical form—compromise natural features—overall impacts localized and continue indefinitely <ul style="list-style-type: none"> - Heavy equipment greatly compacts soil - Natural erosion/runoff altered - Waste wood, metal, PVC pipe, stone, cardboard, trash, and gravel provides potential contamination - 1/4th site/one storage structure within wilderness—use generates occasional loud noise disturb wildlife and natural quiet - Continued use of visitor center impacts to the natural ecosystem in limited area—soil compaction/modified erosion/runoff - Compaction along trails - Limited impacts on nocturnal wildlife - VC generates noise by attracting/channeling human activities - Vehicle traffic, picnicking, visitor activities, and administrative use—disturb the natural quiet - Moderate localized impact to natural ecosystem + Facilities on sloping area/some ground modifications/alteration from drainage natural flow from building runoff + Nighttime lighting attracts insects/bats/human food/other wildlife/negatively impacts natural quiet. + Superintendent's house—limited negative/ wildlife, natural water runoff, soil compaction, and natural quiet—presence precludes natural wildfire + Campground negative to natural ecosystem—disturb natural quiet, increase water use, generation of human

Table 4—Comparison of Environmental Impacts

Long-Term Health of Ecosystems	Alternative A—NPS Proposal	Alternative B	No-Action
	<ul style="list-style-type: none"> - Undergrounding utilities positive by reducing visual presence/short-term negative impacts to wildlife + Impacts of the superintendent's house and access road—same as in no action - Short-term negative impact—erosion, soil disturbance, some vegetation cutting—disrupt wildlife/reduce ability to hear natural sounds + Improve safety in campground—flash flood threat - Selective closure options: campground operation plan/significantly lower threat to life and property - Plan/regularly educate staff/visitors - Periodically review relative weather/flooding information - Damaged in future flooding/consider closing Bonita Creek campground on seasonal/entire basis or convert to day use - Effects same as no-action alternative, except: putting utilities underground reduce their visual presence and negative impacts to - Short-term negative impact/the under-grounding process—erosion, soil disturbance, some vegetation cutting, disrupt wildlife and reduce the ability to hear natural sounds. + King of Lead—long-term positive - Preserve viewshed, eliminating further contamination - Eliminate road/cuts through wilderness - negative effects—rehabilitation process:soil erosion/equipment noise/ wildlife disruptions/air quality/cutting vegetation + Mitigation: - Scheduling work during slower visitor periods/when wildlife disruptions lessened - Using soil loss abatement procedures - Additional fill material from compatible sources - Use native seed—protect genetic material during reseeding - No property purchase until certified as safe for uses proposed + Sugarloaf, Echo Canyon, and Massai same as no-action, except vista clearing—temporary noise/wildlife disruptions/removal vegetation—minor, negative to small area 	<ul style="list-style-type: none"> - Undergrounding utilities positive by reducing visual presence/short-term negative impacts to wildlife + Impacts of the superintendent's house and access road—same as in no action - Short-term negative impact—erosion, soil disturbance, some vegetation cutting—disrupt wildlife/reduce ability to hear natural sounds + Improve safety in campground—flash flood threat - Selective closure options: campground operation plan/significantly lower threat to life and property - Plan/regularly educate staff/visitors - Periodically review relative weather/flooding information - Damaged in future flooding/consider closing Bonita Creek campground on seasonal/entire basis or convert to day use - Effects same no-action alternative, except: putting utilities underground reduce their visual presence and negative impacts - Short-term negative impact/the under-grounding process—erosion, soil disturbance, some vegetation cutting, disrupt wildlife and reduce the ability to hear natural sounds + King of Lead—long-term positive - Preserve viewshed, eliminating further contamination - Eliminate road/cuts through wilderness - Negative effects—rehabilitation process:soil erosion/equipment noise/ wildlife disruptions/air quality/cutting vegetation + Mitigation: - Scheduling work during slower visitor periods/when wildlife disruptions lessened - Using soil loss abatement procedures - Additional fill material from compatible sources - Use native seed—protect genetic material during reseeding - No property purchase until certified as safe for uses proposed + Sugarloaf, Echo Canyon, and Massai same as no-action 	<ul style="list-style-type: none"> waste and trash, creation of social trails,the presence of domestic animals, cooking, evening campfire programs, vehicle traffic, all contribute negatively - Location of campground creates potential human safety problem during heavy rainfalls - Flash flood risk to human campsites and the evacuation routes within the floodplain - Campground negates opportunity improvement in natural fire regime - Occasional wildlife and visitor conflicts require relocation of the animals + 100-acre King of Lead Mine—soil require cleanup if NPS acquired the property - King of Lead and Red Horse Mines/moderate negative effect on natural ecosystem - Preliminary tests show contamination + Road into Sugarloaf parking area, picnic site, and trail to lookout create negative impacts: - Soil compaction, erosion, alteration of natural rainfall sheetflow, wildlife disruption, trash disposal, development of social trails, and noise creation that disturbs the natural quiet - Periodic preservation maintenance—add to the human presence - Staffing of lookout/fire management program brings regular human contact + 19 miles of trail/7 different trailheads in wilderness—periodic trail maintenance and erosion control - Localized soil compaction, interruption of natural water flow, and disruption to wildlife caused by visitor foot traffic - Minor and localized negative impacts, - Use of horses compacts the soil/introduce exotic plants/negatively affects migrating animals such as neotropical migratory birds, and animals with large home ranges, such as mountain lions + Use of the wilderness by researchers doing permitted studies—disruptive to wildlife in short term + Studies may involve consumptive use/harvesting plants etc.

Table 4—Comparison of Environmental Impacts

	Alternative A—NPS Proposal	Alternative B	No-Action
Long-Term Health of Ecosystems (cont.)	<ul style="list-style-type: none"> + Wilderness same as no-action King of Lead/access road/protect/improve wilderness integrity/size 	<ul style="list-style-type: none"> + Wilderness same as no-action King of Lead/access road/protect/improve wilderness integrity/size 	
Economic Contribution to Gateway Communities	<ul style="list-style-type: none"> + Minor short-term increase economic contribution to local community - Short term—expenditure \$6,000,000—\$10.5 million in combined sales, \$1 million in tax revenue/445 jobs. - Long term—increases \$233,500 operational budget—\$419,000 in combined sales, \$35,000 in tax revenue, 18 jobs - Every 1,000 additional visits, \$45,000 in combined sales /\$3,800 in revenue/2 jobs - Every \$100,000-\$180,000 in combined sales /\$15,000 in tax revenue/8 jobs 	<ul style="list-style-type: none"> + Minor short-term increase economic contribution to local community - Short term—expenditure \$4,000,000—\$6.9 million in combined sales, \$7 million in tax revenue/294 jobs. - Long term—increases \$186,500 operational budget—\$335,000 in combined sales, \$28,000 in tax revenue, 14 jobs - Every 1,000 additional visits, \$45,000 in combined sales/\$3,800 in revenue/2 jobs - Every \$100,000-\$180,000 in combined sales/\$15,000 in tax revenue/8 jobs 	<ul style="list-style-type: none"> + Continue to provide income to local economy + No change in total combined sales, sales benefits from park tourism, jobs created, and total tax revenue
Adjacent Landowners	<ul style="list-style-type: none"> + Ensure preservation/protection of Bonita Creek watershed—eliminate threat of future mining/development Work with USFS/adjacent landowners - Camping facilities outside park/overflow camping situation—reduce impacts to sensitive riparian areas on USFS lands - Consider closing all/part of Bonita Creek campground on a seasonal/entire basis or convert it to day use picnicking only, if flooded + New facility outside boundary: - Consolidation/administrative functions - Savings in human/fiscal resources - Historic structures/more appropriately used 	<ul style="list-style-type: none"> + Ensure preservation/protection of Bonita Creek watershed—eliminate threat of future mining/development Work with USFS/adjacent landowners - Camping facilities outside park/overflow camping situation—reduce impacts to sensitive riparian areas on USFS lands - Consider closing all/part of Bonita Creek campground on a seasonal/entire basis or convert it to day use picnicking only, if flooded + New facility outside boundary: - Consolidation/administrative functions - Savings in human/fiscal resources - Historic structures/more appropriately used 	<ul style="list-style-type: none"> + Substantial change to existing conditions - Potential adverse impacts to Bonita Creek watershed if inactive King of Lead Mine reopened/adverse development if sold to private interests - No sewage dumping station/continued dumping of raw sewage onto state highway right-of-way/private property - Lack of overflow camping facilities—displacing camping to sensitive riparian areas on adjacent USFS lands/affects private landowners + Continuance of the present situation - Use/inadequate in size; lacking heating and air conditioning/no reasonable access to modern office equipment, /significant exposure to rodent-borne diseases—hantavirus

Table 4—Comparison of Environmental Impacts*

	Alternative A—NPS Proposal	Alternative B	No-Action
Operational Efficiencies	<ul style="list-style-type: none"> - New maintenance facilities prevent inappropriate encroachment into wilderness - Savings realized by adequate storage facilities to safeguard equipment, supplies, and materials - Visitors more adequately served with facility + Monument staff and visitors better informed—flash flood/Bonita Creek campground + Improved water system enhance employee/visitor safety ensuring dependable water supply 	<ul style="list-style-type: none"> - New maintenance facilities prevent inappropriate encroachment into wilderness - Savings realized by adequate storage facilities to safeguard equipment, supplies, and materials + Monument staff and visitors better informed—flash flood/Bonita Creek campground + Improved water system enhance employee/visitor safety ensuring dependable water supply 	<ul style="list-style-type: none"> - Wasted time because of travel to the headquarters facility to use fax/copy machine - Communication links difficult to maintain - Maintenance facility lacks size, functionality, and good location - Expensive equipment/supplies exposed to elements due to inadequate space - Outdoor storage encroaches on wilderness + Visitor center too small to conduct environmental education + Water distribution inadequate to meet public health. Dead-end lines/stagnant-dangerous water supply/system inadequate for fire protection + Sewage system exceeded maximum design capability/excessive raw sewage entering shallow aquifer
Cumulative Effects	<ul style="list-style-type: none"> + Impact analysis of the proposed GMP analyzes all actions in the past, present, and reasonably foreseeable future that would affect Chiricahua NM and its visitors. No cumulative effects or elements of precedence were identified by any of the alternatives considered 		NA

ENVIRONMENTAL CONSEQUENCES

VISITOR EXPERIENCE

Affected Environment

Annual visitation has ranged from 85,000 to 120,000 over the past five years. Visitation is highest in the spring and lowest in mid-winter and summer. About 40% come on weekends. The majority of regional visitation comes from Tucson, Phoenix, and Sierra Vista. The peak visitation months in the monument are March, April, and May. The average number of visitors for those months in 1998 was 10,334.

Visitation to the monument has fluctuated over the past ten years. Visitation levels to the monument have gradually fallen since 1994. Possible explanations for this reduction in visitations could be the 1994 Rattlesnake Fire and the 1996 government shutdown. Severe weather and park closures during the El Nino weather pattern in 1998 were a definite factor. Trends for 1999 are showing a tremendous increase in visitation. Visitation was up over 100% for the month of February alone.

Future visitation is expected to increase dramatically. The Arizona State Parks System is scheduled to open a new park, Kartchner Caverns, in the fall of 1999. The state predicts an additional 300,000 to 400,000 new visitors per year to Cochise County as a result of the new park opening. The short 60-mile drive from Kartchner Caverns to Chiricahua promises to substantially increase monument visitation.

Currently, the monument operates a seasonal hiker shuttle that takes hikers from the visitor center, campground, or Faraway Ranch areas to their trailhead destinations. Volunteer drivers using a government-owned 15-passenger van operate the shuttle. The shuttle provides one to two trips per day and charges \$2.00 per passenger. A survey of

shuttle riders conducted in the spring of 1996 indicated that 6% of the visitors rode the shuttle. The same survey also indicated that 68% of the riders did some hiking. In 1998, the existing hiker shuttle made approximately 292 trips and transported 1,580 people. The shuttle departs the visitor center at 8:30 each morning when someone wants to go hiking. Ridership on the hiker shuttle has been steady and increasing, despite an overall lower annual visitation rate in the last several years. At certain times during the spring peak visitation season, the shuttle makes two trips up to the trailheads in order to accommodate everyone. The existing system is not designed to transport people back down the mountain at specific time intervals; it is only designed for one-way travel.

Hikers in the wilderness have a large space and relatively few encounters, except during the busier periods and on the Echo Loop trail. Because of its rugged nature, this area would attract only a certain percentage of potential visitors. The trail system can absorb considerably more use than it currently receives, especially on some of the less-hiked trails.

Visitors to the Faraway Ranch Historic District are in a built, social environment and expect the company of others as they walk about the grounds and visit the buildings. Visitors to the more confined ranch house are controlled by entering only on guided tours, which holds the number of people at one time to a level that both facilitates interpretation and protects the house and its furnishings. Here visitors have the opportunity to walk through and learn about a frontier Arizona homestead and its subsequent evolution into an early guest ranch. The ranch was the scene of human activity, at some times quite busy, so it is appropriate for the visitor to view and learn about the historic place in the company of other visitors. Some of the visitors would be

grouped together on conducted tours, others merely passing on the paths or being in close proximity at interpretive exhibits. Only when large touring or school groups are present, or during the busiest weekends, would crowding be an issue.

Visitors to the developed areas (visitor center, picnic areas, Massai Point and other trailheads, campground, road corridor, housing area) can experience crowding, generally on weekends, holidays, and busy periods during the spring. These are high-density areas, and visitors do not have the expectation of solitude or escape here. Relative crowding is acceptable and is to be expected. Here visitors can acquire information, view exhibits, use rest room and telephone facilities, and have a safe and informative experience. There is no formal, indoor area where interpretive programs or presentations can be made or where groups can meet. This function is generally done in the campground, parking area, or on the approach steps to the visitor center. It is possible for visitors to the developed features in the monument to find some measure of solitude and relative aloneness. This can happen during off-peak hours (night in the campground or at Massai Point, early morning at the trailhead, etc.).

Impacts of Proposed GMP—Alternative A

Impacts of the primary park road and first picnic area would be the same as in the no-action alternative, except that slight vegetation clearing and modification of the trail to Stafford Cabin for accessibility would improve visitor experience and safety.

The visitor experience at Faraway Ranch would be enhanced by improvements in building accessibility. Implementation of an accurate landscape management program would provide more historically accurate landscape depiction. Improved preservation maintenance would allow for better presentation of historic structures. Increased climate control would allow for better display

of original museum collection objects. Restoration of historic footpath circulation through the district would provide a more accurate and effective experience for visitors.

Conversion of the old visitor center to an environmental education center would greatly increase the capability of the monument to provide quality environmental education programs, and to a larger audience. Construction of the new headquarters/visitor orientation facility would greatly improve visitor orientation to and interpretation of the monument and provide for expected increase in visitation based on the assumption document in the affected environment section. This would provide a more logical and effective sequence for visiting the monument, would provide a meeting room and presentation area for groups, and would remove many of the small and scattered facilities and park operations from areas of the park, reducing noise and traffic.

Expansion of the existing hiker shuttle and implementation of the long-term visitor transportation system would resolve many of the existing parking problems. The visitor transportation would not be mandatory, so visitors wishing to remain in their vehicles could continue to experience the park on their own. Reconfiguring the Echo Canyon and Massai Point parking lots would increase the parking capacity at the park by 50 spaces, lessening congestion.

Impacts of Alternative B

Impacts on visitor experience would be exactly the same as those for Alternative A except that inadequate visitor orientation facilities would remain. Also, landscape treatment would be curtailed in favor of employing funding resources on restoration work inside structures. This would hinder visitor experience of a more historically accurate landscape and require additional interpretive techniques to help visitors picture landscapes of the past.



Impacts of the No-Action Alternative

The primary park road and first picnic area are important for visitors, in terms of providing a range of ways to tour the monument (drive, hike, horse use, picnicking, reading wayside exhibits) and view monument physical resources, including a special birding area. Because of its narrow width, lack of shoulders, and tight turn radii, the road is inadequate for the large recreation vehicles and buses that use it today, which use is increasing. There are no legal passing zones and only a few places where a slow or large vehicle can pull over to allow others to pass. As a result, large recreation vehicles, which tend to move slowly on the winding road, hold back other vehicles. The problem becomes acute when two such vehicles pass in opposite directions, filling the entire road. Clearly, being caught behind such a slow-moving, view-blocking vehicle is frustrating and could become a potentially dangerous

introduction to the park should the following vehicle attempt to pass.

The major parking locations at Faraway Ranch, the visitor center, Sugarloaf Mountain, Echo Canyon, and Massai Point have serious, but not yet acute, parking problems. The dead end road, with its very limited parking at major points of interest, imposes a definite limit on the number of vehicles that the entire park can accommodate at one time. Driving back and forth, fruitlessly looking for a parking spot and perhaps finding one at a place where they did not want to stop reduces a visitor's pleasure, as does waiting behind an idling vehicle. With only an estimated 190 spaces parkwide, parking is often inadequate during the high visitation months of March, April, and May. The visitor center parking area, which also serves as a trailhead for the entire system of trails in Rhyolite Canyon and Bonita Creek drainage, is so small (approximately 20 spaces) that it causes the greatest parking problem in the

park. Some trailheads have only a few or no parking spaces. When large recreation vehicles and trailers park, they commonly occupy two or more spaces, compounding the shortage of space.

Parking problems degrade both the hikers' and the sightseers' visitor experience in the monument. When visitors have to park illegally, they cut their stay at the monument short. If parked illegally, hikers on the weekdays will leave two hours earlier than hikers parked legally. If parking is not legally available at Echo Canyon, weekday sightseers will leave 25 minutes early. On the weekends, sightseers will leave 10 minutes earlier than normal if illegally parked at Massai Point and 21 minutes earlier than normal if illegally parked at Echo Canyon (NPS 1999).

Visitors are able to tour the historic Faraway Ranch, including house tours, seeing part of the museum collection, and viewing the historic scene with its many landscape features. They can use the rest room and picnic area. Visitor expectations for level of encounter with other visitors ranges from comfort in large groups to waiting until after regular visitor hours to tour the district in relative solitude.

The park has an administrative use area where excess materials and equipment are stored. Use of this area to support park operations has a negative effect on visitor experience in terms of air quality, noise, and traffic.

The visitor center is critical for visitor experience and information acquisition. Crowding can be expected. Parking can be exceeded on busiest days. Here hikers can also use the hiker shuttle that drops hikers at the upper parking lots and permits them to walk back to the visitor center. Accessible facilities provide for those visitors with special access needs. This is generally the location where emergency services are provided.

Depending on the time of year and the day of the week, the campground can be very quiet or completely filled and boisterous. Visitors who use the campground generally report an outstanding camping experience.

Sugarloaf, Echo Canyon, and Massai Point are the most popular of the trailheads, and the destination of many hikers. There are also vault toilets, wayside exhibits, and picnic facilities at each of these three areas.

Visitors take the wilderness with varying degrees of effort. It is possible to walk for only several minutes and have experienced the Chiricahua NM wilderness. Others hike for hours. Except for the busiest periods, and with the exception of the Echo Loop, there is a measure of solitude and separation from other hikers along most trail segments. Visitors often see wildlife and the abundant plant life while hiking in the wilderness. Here also, the primary park features, the pinnacles and spires, can be seen at close range. This is the essence of the Chiricahua experience.

ARCHEOLOGICAL RESOURCES

Affected Environment

The archeology of the park is poorly known. Prehistory includes evidence of the Archaic period Cochise Culture and the San Simon Branch of the Mogollon Culture. The San Simon Branch was influenced by the Hohokam between A.D. 300 and 1200 and by the Salado after A.D. 1200. The Chiricahua Apache were present in these mountains from the late seventeenth century through the nineteenth century.

Only 3% of the park has been inventoried, and a full archeological survey of the monument has been proposed. The survey will be stratified by landform, with intensive survey of the low areas and ridgelines and a sample survey of steeper terrain.

Impacts of Proposed GMP—Alternative A

The proposed alternative calls for a new combined headquarters/visitor orientation facility outside the park boundaries. This alternative would be beneficial because the interpretation center could serve to educate the public on archeological and historical resources at the park. Inventory within the area of potential effect could increase the knowledge of historic and prehistoric sites in the monument vicinity that in turn would allow the park to better interpret the park resources for visitors.

If the King of Lead Mine would be acquired and the park boundary extended to include it, the archeological resources within the newly acquired property would be inventoried and evaluated.

Other proposals include

- 1) replacement of the campground septic system,
- 2) extending the water system from the Faraway main visitor center/housing area to the parking lot,
- 3) enlarging the two-way trail from the Faraway Ranch house into a loop trail starting and ending at the parking area,
- 4) making the trail along Bonita Creek from the picnic area to the Stafford Cabin handicapped accessible,
- 5) moving stored items from the “boneyard” and then restoring the area to its natural condition, and
- 6) implementing improvements at Massai Point, Echo Canyon parking/trailhead, and Sugarloaf developed areas. Archeological survey necessary to perform §106 compliance for the proposed alternatives would contribute toward the goal of completing an archeological inventory at Chiricahua National Monument.

Impacts of Alternative B

Impacts on archeological resources would be exactly the same as those for Alternative A, except that only an administrative facility would be located outside the park. Impacts associated with retaining the existing visitor

orientation facility and methods are described in the no-action alternative.

Impacts of No-Action Alternative

Under the no-action alternative, most of the known archeological resources would not be impacted. The boneyard area has not been inventoried, and archeological sites may be buried there. Continued use of this area as a boneyard may adversely affect possible sites. Archeological inventory and §106 consultation would be required for the no-action alternative.

CULTURAL LANDSCAPES AND HISTORIC RESOURCES

Affected Environment

Two historic landscapes have been identified so far within Chiricahua NM. The Faraway Ranch is a historic vernacular landscape of approximately 215 acres, which is designated as a historic district. This landscape was inventoried (NPS 1997), and significant landscape characteristics include overall spatial organization of the ranching complex as well as individual vegetation features such as the orchard remains, circulation features such as roads and the foot bridge, and structural features such as irrigation ditches and the swimming pool.

The Civilian Conservation Corps-designed landscape was not inventoried. Likely significant characteristics of this landscape include patterns of spatial organization and circulation, construction and planting design principles and use of materials characteristic of this period, and specific associated features, for example the visitor center, maintenance and housing complexes, the 14-mile trail network, and the various walkways, and walls and structures at the overlooks. Until the inventory is completed, all landscape patterns and features associated with CCC activity will need to be managed as potentially National Register-eligible resources.

It is possible that additional landscape resources (including ethnographic landscapes) would be identified in the remaining areas of the park as inventory work is completed.

The List of Classified Structures (LCS) for Chiricahua National Monument, approved in 1995, includes 61 structures that are listed on, or have been determined eligible for listing on, the National Register of Historic Places. The list includes two principal and distinct types of buildings. One major set of structures is associated with the Faraway Ranch and were built in support of cattle and, later, guest ranching activities by the Stafford, Erickson, and Riggs families. The other major set of structures was built by the CCC, in support of federal government (USFS and later NPS) activities. In addition, the LCS includes various other features, such as the Massai Point Road, hiking trails, grave markers, creek dams, and stone masonry retaining walls.

The park has 15,000 items in storage on site. The park facilities consist of the historic Faraway historic house, which has very limited climatic controls. A few items are housed in a 10' x 10' storage building in the maintenance area, which does have climatic controls but lacks any fire or intrusion alarm system. An additional 65,000 items are in storage at the Western Archeological Center in Tucson.

The Faraway Ranch Historic District was entered on the National Register in 1980. The nomination describes 24 features associated with the ranch as contributing to the significance of the district. These range in scale and complexity from a deteriorated concrete water trough to the main ranch house. The ranch district has significance in the areas of archeology, frontier settlement, historic agriculture, cattle and guest ranching, architecture, conservation, immigrant history, and women's history, with the Erickson family and Lillian Riggs as examples. The district is associated with events that made a

significant contribution to the broad patterns of our history, including European settlement; conflicts between the Apaches, Anglo settlers, and military; the end of the frontier; and the conservation movement, through the national forests and the national monuments.

In addition to settlement and ranching history, the Faraway Ranch Historic District also contains the site of the U.S. Army "Camp at Bonita Canyon." This was a cavalry camp established during the Geronimo Campaign to deny the Apaches water in Bonita Canyon, as well as use of the canyon as a travel route through the Chiricahua Mountains. The camp was established and garrisoned by elements of the 10th U.S. Cavalry, a regiment of black enlisted men with white officers.

A draft National Register nomination form for 14 CCC buildings was prepared in 1994, but the draft was never approved and needs revision. Associated retaining walls, steps, the Massai Point Road, hiking trails, and other landscape features have since been determined to be eligible parts of the CCC district. They were designed by the NPS Branch of Plans and Designs, according to the principles of rustic design. They are the results of intensive planning and construction efforts, in the years 1916 to 1942. These structures illustrate the development of facilities at Chiricahua and are good examples of the quality of craftsmanship typical of the work of CCC crews throughout the country.

These buildings are scattered throughout the national monument. In the headquarters area, the buildings include the visitor center, two employee residences, and several maintenance facilities. CCC buildings outside of the headquarters area include a comfort station and residence in the campground, an orientation station at Massai Point, and a fire lookout on Sugarloaf Mountain. The buildings and site features were constructed using oversized, heavy, rock masonry walls, with pitched roofs

covered with cedar shingles. Both shingles and gable end boards were darkened with a creosote stain. Thirteen of the buildings have a single-story design in a rustic style of coursed and uncoursed stone set in mortar. Most of the buildings are in a wooded setting and thus the building style blends with the setting.



The CCC was also responsible for significant upgrades to the Massai Point Road. The road was originally built by USFS or local residents, when the monument lands were still part of Coronado National Forest. The road was upgraded and oiled by the CCC in time for the dedication ceremonies in October 1934. Later, a significant amount of road improvement work was done by the CCC as a separate project. This work consisted of the construction of numerous retaining walls and culvert headwalls, as well as regrading, cutting, and filling. The road is the primary means for visitors to experience the park, and its improvement was a key element of the development plan for the monument.

A network of trails was also built by members of the CCC, during the six years they worked at Chiricahua and the adjoining Coronado National Forest. Construction of the trails and other structures required extensive blasting and masonry skills. Some of the trails were originally made by Ed Riggs, as part of his efforts to open the area to visitors, and were formalized by the CCC. They are a good example of the quality craftsmanship typical of the trail work of the CCC crews throughout the country.

Impacts of Proposed GMP—Alternative A

The preservation of visual quality within the park and working with adjacent landowners to minimize modern intrusions on park viewsheds would benefit the experience of those visiting and hiking within the park and would retain the less-developed, more historic views from identified historic landscapes within the park.

At Faraway Ranch, the proposed GMP would make some changes to reduce the administrative use of the buildings. These changes include the removal of office,

conference room, and collection storage functions from the site. The park would then rehabilitate these areas and provide additional interpretation and visitation opportunities. This would improve the condition of the buildings, reduce the number of government vehicles parked on the grounds, and provide the visitor with a richer experience.

All buildings and facilities open to the public would be made accessible to mobility impaired visitors. This would require some modification to existing entryways but would enable people with mobility impairments to experience the interior of additional buildings.

The Faraway historic vernacular landscape and CCC historic designed landscape areas would continue to be managed as historic landscape resources, and modifications for visitor safety and accessibility would be made so as not to reduce the integrity of these areas. Maintaining the integrity of all Faraway landscape areas and features would result in no adverse effect on this landscape. The integrity of the CCC areas' design principles and use of materials would also be maintained, preserving those resources as well and resulting in no adverse effect.

The visitor circulation pattern around the site would be rearranged so that visitors walk from the parking lot more directly to the main ranch house, using a route that follows the original road to the house. The visitors would return to the parking lot by way of the existing trail by the corrals. This circulation change would provide a more historically accurate and attractive approach to the ranch without adversely impacting the historic structures or cultural landscape.

Several CCC structures in the headquarters area would undergo significant changes in use. The visitor center and administration building would be converted to an environmental education center. The maintenance area would see a reduction in use because of the relocation of many maintenance activities to the proposed new headquarters/visitor orientation facility area. Nonhistoric structures in the maintenance area, such as the facility managers office, would be removed. These changes would result in reduced developmental pressure on both the buildings and the surrounding cultural landscape. In addition, the less intensive use of these buildings, combined with continuing preservation maintenance, would prolong their life.

The campground area would remain much as it is although handicapped accessibility would be improved and utilities would be put underground. The handicapped accessibility modifications would be made so as not

adversely affect the historic structures or cultural landscape. The underground placement of the utilities would have a beneficial effect on the setting.

The CCC-built Massai Point Road would be maintained essentially as it is. The road would be repaved but no widening or straightening would take place. The size and number of vehicles might need to be limited in order to preserve the experience of the road and ensure safety. Some vista clearing along the road would take place in order to expose rock formations that were once visible but are now obscured by vegetation. These measures will have the effect of restoring, in the case of the vistas, and preserving, in the case of the road character, the original experience of driving the park road. The proposed developments would be done in such a way as to be compatible with the significant CCC landscape elements (which will be determined by the cultural landscape inventory) so as not to reduce the integrity of the overall CCC landscape.

The Massai Point exhibit building would be made handicapped accessible. This will enable mobility impaired visitors to experience some of the finest vistas in the park. The handicapped accessible trail to the exhibit building will be built over presently existing social trails with the result that the effect on the cultural landscape would be minimal. The ramp necessary to enter the building would be constructed in a reversible manner so that the effect would not be adverse. The new exhibits in the building would be installed so as to have no adverse effect on the structure.

The CCC-built trails would be maintained as they are with no adverse effect on their integrity.

Impacts of Alternative B

Impacts on cultural landscapes and historic resources would be exactly the same as those for Alternative A, except that only an

administrative facility would be located outside the park. Impacts associated with retaining inadequate visitor orientation facilities visitor orientation facility and methods are described in the no-action alternative.

Landscape treatment would be curtailed in favor of employing funding resources on restoration work inside structures. Therefore, beneficial work describe under Alternative A relating to restoring a cultural landscape would not be completed in this alternative. This would hinder visitor experience of a more historically accurate landscape and require additional interpretive techniques to help visitors picture landscapes of the past. Impacts associated with existing conditions of both the lack of adequate visitor orientation and landscape treatments are outlined in the no-action alternative.

Impacts of the No-Action Alternative

The Faraway historic vernacular landscape and CCC historic designed landscape areas would continue to be managed as historic landscape resources, and any modifications would be made so as not to reduce the integrity of these areas. Maintaining the integrity of all Faraway landscape areas and features would result in no adverse effect on this landscape. The integrity of the CCC area design principles and use of materials would also be maintained, preserving those resources as well and resulting in no adverse effect.

Without restoration of landscape structures, the condition of landscape and house interior would continue to be very different and interpretation would be needed to explain this.

At the present time, buildings at Faraway Ranch are used for a variety of purposes. In addition to preservation of the resource, these include interpretation, office space, conference room, collection storage, and a maintenance area. The main ranch house

underwent major restoration in 1988, but most of the other buildings have received far less attention and are now in fair or poor condition, according to the List of Classified Structures (LCS). Lack of funding has prevented park staff from giving some structures the attention they deserve. The no-action alternative would perpetuate the situation where some structures, such as the main ranch house, are in good condition, and other structures, such as the corrals, are in poor condition. This contrast in levels of preservation treatment is obvious to the visitor. The no-action alternative would result in a continuing loss of integrity for some resources if funding could not be obtained for preservation maintenance. In addition, the no-action alternative would continue the use of several historic structures for inappropriate purposes, such as collection storage and office space. These structures do not adequately meet the need for collection storage and office space, and their use as such prevents them from being appropriately interpreted and open to the public.

Continued overuse of this visitor center/headquarters area, which is part of the historic CCC designed landscape, may reduce the integrity of this area, either indirectly (general wear and tear) or directly (future proposals for additional development or modifications).

Most of the CCC structures still serve their original purpose, although all have undergone some modification over the years. The no-action alternative would likely result in the continued incremental alteration of these historic structures as modifications are made to adapt the buildings to contemporary administrative and maintenance needs. These inevitable incremental changes, cumulatively over time, contribute to the loss of the integrity of the structures and their settings.

The CCC-built Massai Point Road and hiking trails are in good condition, according to the LCS. The no-action alternative would not

affect the physical integrity of the road and trails. However, the vehicle congestion that sometimes occurs along the road and at parking areas would not be addressed. This would result in diminished visitor experience.

LONG-TERM HEALTH OF NATURAL ECOSYSTEMS

Affected Environment— *Physiography/Geology/Soils/Climate*

Chiricahua lies within the Mexican Highland portion of the Basin and Range Physiographic Province, between the Colorado Plateau and the Sierra Madre. The monument occupies a relatively low area in the northwest portion of the Chiricahua Mountains, with an elevational range from 5,150 feet along the west boundary to 7,825 feet at the northern boundary. The 11,985 acres within the monument are framed by an irregular boundary based primarily on political land lines, with only the northern boundary following a landform. Bonita Creek and Rhyolite Creek are the principal watersheds within the monument and drain the majority of the area. Most of the monument is dominated by very steep terrain, near vertical to vertical cliffs, and escarpments.

The monument is in an area that was impacted by the Turkey Creek caldera approximately 27 million years ago. Rhyolitic ash was deposited in three separate, cataclysmic eruption and volcanic events. Ash fall and surge deposits were up to 1,400 feet in thickness in some areas. Subsequent erosion and weathering produced columns and pinnacles in rocks that are strongly jointed. In places, there are cliffs higher than 100 feet. Sloping areas are characterized by landslides and debris flows. A dacite lava flow remnant from a later eruption is exposed as the summit of Sugarloaf Mountain.

Soils range from very shallow “new” soils only a few inches deep on ridges and summits to more than a dozen feet deep along lower drainage bottoms. Differing areas

of the monument with different parent material have formed different soils, and a 1996 soil survey identified 24 soil units within the monument. Soils based on Rhyolitic parent material tend to be acidic and less productive than other soils, such as those from limestone parent material.

Climate of the area is semiarid with low rainfall, relatively high temperatures and evaporation, and low humidity. There is a distinct bimodal precipitation pattern, with wet winters and summers and a pronounced spring-early summer drought period. Winter moisture tends to exceed summer rainfall, which comes in the form of thunderstorms, as moist air masses move in from the southeast. Winter storms bring moisture generally from northwest frontal systems. Late summer to early fall tropical storms from the Pacific can bring substantial rainfall and flooding. Temperatures rise through the spring, peaking in late June and early July just as the monsoon season starts. Lowest average temperatures are in January.

Affected Environment—*Vegetation*

Vegetation of the monument is diverse with a high degree of biotic complexity. This is also a consequence of the presence of a broad range of temperature, precipitation, elevation, topography, soil, and fire regimes. The monument is in a region of complex intermingling of floristic elements from the Rocky Mountains to the north, Sonoran and Chihuahuan Deserts, and Madrean evergreen woodlands to the south.

A total of 687 vascular plant species has been recorded, with a mix of 11 vegetation associations providing habitat for an equally diverse wildlife collection. Major plant associations are:

- Madrean evergreen woodland, found throughout the monument, and generally subdivided into Mexican oak-pine woodland, open oak woodland (savanna), and riparian oak woodland. This association makes up 65% of the monument, ranging from upland

slopes and mesas where ponderosa, Apache, and Chihuahua pines dominate, to south-facing slopes in lower canyons, where Emory and Arizona white oak dominate, and riparian bottoms in lower sections of Rhyolite Canyon.

- Interior chaparral, composed of evergreen species such as point-leaf manzanita, Toumey oak, Arizona white oak, pinyon pine, and alligator juniper and found in a mosaic pattern throughout the Mexican pine-oak-woodland.
- Semi-desert grassland, found on the lower, west-facing slopes, characterized by native cool and warm-season grasses. Some of these areas have been converted partly to mixed grass-scrub stands, possibly by a combination of the absence of wildfire or climate change.
- Montane conifer forest, found on wetter, north facing slopes and canyon bottoms at higher elevations. These are either pure ponderosa pine stands, or have an overstory of pine and Douglas fir with an oak understory.
- Relict conifer forest, dominated by Arizona cypress are found along canyon bottoms. These stands seem to be controlled and perpetuated by the presence or absence of events such as flood or fire.

Affected Environment—Wildlife

The variety of habitat types within the site contributes significantly to the faunal diversity. A total of 8 species of amphibian, 46 species of reptiles, 71 species of mammals, and 171 species of birds either have been documented or are expected to occur. The only survey work completed to date was a small mammal inventory done between 1984 and 1986 (published in 1990) by Douglas Duncan. Single-focus studies have looked at a variety of animals, including coati, javelina, fox squirrel, and Mexican jays. Two years of a bird banding project have been conducted.

Animals are attracted by the abundant niches, relatively rich food source, and reliable water in the five springs found in the monument. Mammals include mountain lion, black bear, whitetail deer, coatimundi, ringtail, skunk, collared peccary, coyote, gray fox, black-tailed jackrabbit, desert cottontail, white-

throated woodrat, Merriam's kangaroo rat, rock squirrel, cliff chipmunk, fox squirrel, desert shrew, long-tongued bat, and lesser long-nosed bat.

Among the 171 bird species found in the historic site include 9 hummingbird species, 10 hawk species, 3 falcons, 8 owls, 17 flycatcher species, 5 wrens, 5 swallows, and 8 woodpecker species.

The desert grasslands support a variety of amphibians and reptiles. Those recorded include tiger salamander, southern spadefoot toad, Great Plains toad, canyon treefrog, western box turtle, Texas horned lizard, mountain and Clark spiny lizards, Chihuahuan spotted whiptail, Madrean alligator lizard, rock rattlesnake, twin-spotted rattlesnake, Mojave rattlesnake, and western coral snake.

No fish species are found at Chiricahua National Monument.

Affected Environment—Threatened and Endangered Species

The area along the Arizona, New Mexico, and Mexico border is rich in biodiversity. This area contains species that have been adversely affected by human activities, including grazing, hunting, farming, wood gathering, fire suppression, mining, water diversion, groundwater withdrawal, and general development. The only survey that has been conducted in the monument was for small mammals, and that was limited in its scope. Two federally listed threatened and endangered species have been identified as being either historically or currently present in the monument:

- American peregrine falcon (*Falco peregrinus anatum*), endangered.
- Mexican Spotted owl (*Strix occidentalis lucida*), threatened.
- Northern goshawk (*Accipiter gentilis*), which may soon be listed by the Fish and Wildlife Service (FWS), has been identified within the monument.

Surveys have not been conducted for the following species in the monument, nor have they been previously identified there, but there is habitat that could support them.

- Jaguarundi (*Felis yagouaroundi tolteca*). The FWS list of endangered and threatened wildlife lists the jaguarundi as endangered, and there have been several recent, unconfirmed reports of this small cat have occurred at the monument and at Fort Bowie.
- Jaguar (*Panthera onca*), endangered; recent sightings along the Mexico border 50 miles to the south, and one was killed 20 miles to the northwest in the mid-1980s.
- Lesser long-nose bat (*Leptonycteris curasoea verbabuenae*), endangered; individuals seen at hummingbird feeders in the monument, and two roosting sites confirmed within 5 miles to the southeast.
- Chiricahua leopard frog (*Rana chiricahuensis*). This candidate species is found in the Chiricahua Mountains to the south.
- New Mexican ridge-nosed rattlesnake (*Crotalus willardi obscurus*). Threatened; found 5 miles to the south.

Affected Environment—Floodplains

No permanent, perennial flowing streams exist within the site. During the summer monsoon season, and at times during heavy winter rain or snowfall, intermittent and ephemeral streams can carry large volumes of runoff for brief periods. Bonita Creek and Rhyolite Creek form the two main drainages and watersheds, and together drain the majority of the monument. Picket and Little Picket Canyons drain to the west, and Jesse James and Little Jesse drain to the south into Pinery Canyon.

Several of these creeks contain features that define riparian areas. These include vegetation such as Arizona sycamore, willow, cottonwood, and walnut. Specialized soils, the presence of water, and certain faunal species also define riparian areas. Riparian areas, while only contributing a small percent of the land area of the southwest, support a disproportionately large array of the

entire faunal makeup of upper and lower desert areas. These areas within the monument are critical to the resident wildlife populations, and to migrating animals as well.

In August 1993, an eastern Pacific hurricane crossed into the Mexican highlands and stalled over southeast Arizona. Following on the heels of a wet month, the rainfall from this storm produced a 500-year flood event in Rhyolite Canyon, with estimated discharge flows of 3,250 cubic feet per second (cfs) Bonita Creek, just below the monument's campground, had an estimated discharge of 600 cfs. After the confluence of Rhyolite and Bonita Creeks the discharge flow was slightly above the calculated 100-year flood event and was approximately 3,500-4,000 cfs. The rapid flood damaged the campground, visitor center parking lot and road crossing, trail bridges across the creek at several locations, and the road to the superintendent's house. Flood water crept right up to some of the Faraway historic structures and flooded the entrance meadows.

Affected Environment—Air Quality and Night Sky

Chiricahua NM is classified as a Class I attainment area. Monument staff have been sampling and monitoring air quality since the late 1980s. This monitoring has shown the air to be relatively free from elements contributing to reduced air quality and visibility. Emissions from large nearby and regional emission sources are measured at the monument. A 1996 study of lichens as bioindicators of air quality (St. Clair) indicates that there is good air quality within the site. Lichens accumulate and store elements in much the same way that filter-feeding shellfish store pollutants in the ocean. Analysis of this data also reveals the presence of periodic chemicals and particulates from coal-fired generating stations within the region, including from as far away as Mexico and southern Texas. With the closing of the Douglas copper smelter located 50 miles away, a measurable improvement was noted.

Air quality can also be adversely affected by wind events that transport dust from the huge Willcox Playa across Apache Pass, and by occasional wildland fires or prescribed fires in the area. The general wind patterns bring regional air mass movement from the southwest and tend to support better air quality in the winter months than in the summer months.

Visitors have long come to the monument to view the unexcelled night sky. Massai Point parking area is an ideal place to view celestial events as well as enjoy casual, nightly sky viewing. Being readily accessible by vehicle, in an area with relatively clear air, at an elevation of 6,800 feet, and with no community larger than 7,000 residents within 65 miles or other large light sources nearby, this location provides a special setting from which to enjoy the night sky.

Affected Environment—*Scenic Vistas from Within and Outside*

Much of visitor viewing within the monument, whether done on foot or through a windshield, is on an intimate scale—visitor center exhibits, wildlife, flowers, flowing streams, CCC architecture, or historic structures and their setting at Faraway Ranch. The horizon of interest for these visitors, at those moments, is relatively short and near at hand. For those who drive to the upper parking lots, and for hikers who walk along the wilderness trails, the monument takes on a different scale and setting. Long-range vistas in all directions provide sweeping panoramas: the Rincon Mountains as far as Tucson to the west, Cochise Head to the north, the taller Chiricahua Mountain peaks to the south, and the Basin and Range uplift mountains into New Mexico to the east. Sunrises and sunsets spread out from one's feet away to the curve of the earth. Visitors can watch a fascinating display of changing shadows among the rock pinnacles as the sun changes location in the sky. From these higher vantage points, the pinnacles within the monument can be readily seen. But

almost the entire backdrop resides outside the monument.

Affected Environment—*Wilderness Values*

The 1974 legislation that created wilderness areas and a system to hold them in the United States was responsible for ultimately designating 10,280 acres, or 86% of the total area, within Chiricahua National Monument as wilderness. Designed to be part of the larger wilderness system, this relatively small patch of wilderness contains a magnificent natural landscape and a bewildering array of plants and animals nearly untouched by human presence. The Chiricahua NM wilderness area is easily accessible, so visitors need not invest much in the way of time, money, or effort to visit it. A visitor traveling from a large urban area such as Tucson or Phoenix can step out of the vehicle after a comfortable, high-speed drive, and place their next, street-shoed step in wilderness. Lacking proper clothing, supplies, or guidance, these individuals do regularly clamber around the hiking trails in the monument. Many of the visitors are far more comfortable in urban parks and expect some of that same experience when they visit the monument. Many are unlikely, due to age or lifestyle, to tackle the wilder, more remote wilderness areas, or even the Chiricahua wilderness area 10 miles to the south, managed by the Coronado National Forest and three times the size of the monument. The monument gives them an area they can safely visit, but still count themselves among those that hike in wilderness.

Chiricahua also gets its share of experienced hikers and wilderness users. The more heavily used trails such as the Echo Loop tend to be crowded on weekends and during busier times of year. But there are other trails with fewer hikers where a sense of aloneness and solitude can be found. Trails have adequate surfaces, are wide, and follow the more gentle slopes and contours. In this very rugged landscape with rocks and ledges and

thick vegetation, hiking the formal trails is a pleasure.

Affected Environment—*Ability to Hear Natural Sounds*

The monument is in the relatively remote northern Chiricahua Mountains, and along the eastern reach of Sulfur Springs Valley to the west, itself relatively remote and lightly populated. The only road into the monument is a dead end. The lowland area just west of the monument is lightly traveled, generally by site visitors and local ranchers, and there is no heavy industry or other human activity to generate sound to disturb the natural quiet of the site. Only visitor and staff road traffic and occasional maintenance and resource projects by the site staff provide sources of noise that would be anomalous with the remote nature of the area. Some of these projects, such as mechanical fuel reduction or road edge tree pruning, can generate disruptive sounds for prolonged periods, generally within the road corridor area. The loudest sounds come from occasional aircraft passing low over the monument. Visitors generally spend at least some time away from their vehicles, hiking along all or parts of the 19 miles of trails. They engage in low-key activities such as bird-watching, photography, and hiking that do not tend to generate sounds that would disrupt other visitors. Dogs are not allowed on most of the trails. There are areas in the monument, however, where noise is generated. These include the maintenance yard and housing area, picnic areas associated with parking lots, and the campground. Visitors and staff engage in more frequent, and louder, activities in these areas.

Many visitors report that they find the solitude at the monument important and desirable. The isolated and relatively wild site is conducive to listening to the sounds of wildlife, wind through the trees, cascade of rocks down a slope, or the trickle of water flowing during the wetter periods. This ability to freely hear natural sounds is an important

component of a visitor's experience, especially in the wilderness. Any sounds that make the visitor aware of modern activity are disruptive and serve to diminish the quality and integrity of their visit.

Impacts of Proposed GMP—Alternative A

Environmental impacts of the primary park road and first picnic area would be the same as with the existing use. Vista clearing would remove some trees and brush that might provide habitat for wildlife, although this effect would be very localized. Chain saw use would also disturb wildlife and interfere with the ability to hear natural sounds.

Implementation of certain management actions such as a shuttle system would serve to reduce the total number of vehicles driving the road and would be a positive effect for wildlife, air quality, and the ability to hear natural sounds. On the other hand, current use is limited by the finite number of parking spaces. Implementation of a shuttle system could actually deliver more visitors to trailheads and picnic areas, creating greater negative human impacts to the natural ecosystem at those sites and along the wilderness trails.

Eliminating offices and collection storage at Faraway Ranch would have a positive effect by reducing occupation of several historic structures, and subsequent staff traffic, parking, food presence, and so on.

Implementation of a vegetation management program could actually serve to provide a more faithful, natural vegetative landscape than currently exists. Historic photographs from the 1880s in Lower Bonita Canyon show a much more open landscape than currently exists. This is consistent with west-facing drainages in the Chiricahua Mountains and other "sky islands" and is believed to be primarily the result of the combined effects of cattle grazing and fire suppression during this 100-year period. Creeks once flowed much more frequently in these drainages than they do now, even though precipitation patterns

are similar. This is also a probable result of the increased vegetation now growing in the canyons. Specific effects of the proposed GMP will depend on the findings of additional vegetation and historic landscape studies, in support of the landscape and fire management programs. We do know that the Erickson and Riggs families planted extensive fruit orchards to both the east and west of the ranch complex and raised fruit crops for their own use and for sale to the military and others. Aside from the small representative cluster of fruit trees planted in 1994 in the ranch house yard, no attempts will be made to expand this program to replicate the earlier orchard operation. Park staff would reduce the number of encroaching trees growing in the formerly open area between the ranch house and the Stafford Cabin. This would provide a more accurate historical scene for visitors and restore the canyon to a more natural vegetation composition. It would also assist with control of the 65 exotic plant species that have been identified in the monument, most of which are in the historic district. This would also provide more options for reducing hazard fuels and restoring a more natural fire regime.

The subsequent reduction in the extent of exotic plants and a return to a more natural environment would favor native wildlife by providing increased native food source and habitat. There would be a slight contribution to a return to a more natural hydrologic condition because a reduction in woody vegetation increases water availability for surface flow. Soils and natural sounds should be unaffected by this alternative. These impacts are local in nature and relatively moderate in severity.

Rearranging visitor circulation foot traffic would reduce harmful foot traffic into the stock watering tank and windmill near the tack barn, eliminating social trails.

Moving the boneyard to a more appropriate location would eliminate all the negative environmental and visitor impacts presently

encountered in the present location. This would depend, however, on where the boneyard is relocated. Placement in any other site within the monument would result in many of the same effects, except that relocation within the monument but outside the wilderness would be more beneficial than the current situation. Relocation of this function outside the monument would provide the most benefit.

Construction of a new headquarters/visitor orientation facility and administrative facility outside of the monument and conversion of the existing visitor center to an environmental education center would provide positive environmental effects. Although it would not totally eliminate the negative effects discussed in the current alternative, reducing the amount of human traffic and presence at this location would correspondingly reduce these negative impacts.

Removal of some of the maintenance operation from the housing and maintenance area would reduce the overall negative environmental effects. But continued use of the area for housing, parking, warehouse, fire cache, rescue/EMS cache, and offices would maintain many of the same impacts as the current use. Undergrounding utilities would have a positive effect by reducing their visual presence and any negative impacts to wildlife they may pose. However, there would be a short-term negative impact during the undergrounding process. This would include erosion, soil disturbance, and some vegetation cutting. This process would disrupt wildlife and interfere with the ability to hear natural sounds.

Impacts of the superintendent's house and access road would be the same as in no-action alternative.

In this proposal, NPS would improve safety to monument staff and visitors from the threat of flash flooding. The park would continue to operate the existing 25-site campground in the floodplain at Chiricahua. Selective closure

options described in an operational plan (campground operation plan) would significantly lower the threat to life and property within the campground area. The monument would develop this plan, regularly educate staff and visitors in its detail, and periodically review it with any additional relative weather or flooding information that becomes available.

The risk to human life in the campground cannot be eliminated entirely. If the campground is damaged in future flooding or, as additional camping facilities are developed outside the monument by private parties, the monument staff would consider closing all or part of the Bonita Creek campground on a seasonal or entire basis or converting it to day use picnicking only.

Effects from the campground would be the same as in the no-action alternative, except that putting utilities underground would reduce their visual presence and any negative impacts to wildlife they may pose. However, there would be a short-term negative impact during the undergrounding process. This would include erosion, soil disturbance, and some vegetation cutting. This process would disrupt wildlife and interfere with the ability to hear natural sounds.

Adoption of the proposed alternative that includes purchase of the King of Lead Mine private property, mine site rehabilitation, and conversion of the road to a hiking trail would provide important long-term positive environmental effects. These include preserving an important viewshed, eliminating the potential for further contamination and pollution from mining activities; and eliminating the use of this road that cuts through the monument wilderness. There would be some negative effects during the actual rehabilitation process that would have to be mitigated. These would include soil erosion, heavy equipment noise, wildlife disruptions, air quality degradation, and possibly cutting of some vegetation. Mitigation could include scheduling work

during slower visitor periods and when wildlife disruptions would be fewest; using soil loss abatement procedures; getting additional soil and fill material from compatible sources; and collecting and using native seed sources to protect genetic material during reseeding.

Also, low levels of cadmium and lead have been detected in the soils at the King of Lead Mine. Pursuant to USDI policy, the NPS would not purchase the property until it has been certified as safe for the uses proposed.

Impacts at the Sugarloaf, Echo Canyon, and Massai areas would be the same as described for the no-action alternative, except that vista clearing would provide temporary noise and wildlife disruptions and remove a relatively small amount of vegetation. This would be a minor, negative environmental impact to a very small area.

Effects on wilderness are the same as described for the no-action alternative. Incorporating the King of Lead Mine and its dirt access road into the monument wilderness would serve to protect and improve the integrity and size of the wilderness.

In this alternative, construction of a new headquarters/visitor orientation facility including all administrative offices, maintenance storage area, collections storage, central sewage system, and transportation origination area, outside the entrance to the monument on private land would provide environmental benefits to those former areas within the monument. There would be reduced wildlife disturbance, less noise, and improved air quality because of fewer vehicles operating on the park road and relocation of maintenance operations. On the private land where these facilities would be built, there would be additional disturbance, including soil compaction, loss of vegetative cover, alteration of any wildlife use, and increased noise and reduced air quality in the

immediate area, primarily because of the concentration of vehicles.

Impacts of Alternative B

Impacts on long-term health of ecosystems would be the same as those for Alternative A, except that because the natural system would not be manipulated to cultural landscape specification there would be no impact, and natural systems would be healthier. Impacts associated with retaining inadequate visitor orientation facilities and methods are described in the no-action alternative.

Impacts of No-Action Alternative

The current situation, with the paved road, picnic area, and parking areas, causes modifications in the natural water sheetflow patterns during heavy rainfall periods. Water is prevented from flowing in some areas and is channeled to other areas. This alters the natural erosion and vegetation patterns along the road corridor. One result is the presence of exotic plants and other plants along the road edge that would not otherwise be there, brought in by long-distance travelers and unnaturally provided moisture. Monument staff have counted wildlife deaths attributed to vehicle traffic, ranging from 7 to 67 animals per year since 1995. A study at Saguaro National Park reported that only 5% of the road-killed animals are still on the road the following morning, the rest having been removed by scavengers during the night. Although the two areas are very different and the monument reporting protocol is not rigorous, this does suggest that numbers of animals are killed because of the road and that the magnitude of impacts of the road on wildlife may be higher than what the staff has reported. Proper road maintenance requires occasional resurfacing, road edge vegetation manipulation, snowplowing, and culvert and shoulder attention. All of these actions have the potential to disturb wildlife and visitors. Most of the disruption of the ability to hear natural sounds at the site comes in the area of the park nearest to the park road. Presence of

picnicking provides food attraction for wildlife. The overall effect of this is a moderate, localized negative impact.

The presence, preservation, and use of the Faraway Ranch historic district provides several negative impacts to the natural area. Visitor use disrupts wildlife. Picnicking, employee presence, and maintenance of fruit trees and a windmill provide nonnatural sources of food and water for wildlife. Preservation of historic structures eliminates the chance for lightning fires to exert their natural shaping influence, requiring the use of mechanical or prescribed fire techniques. Something about the former pastures and crop fields method of managing and maintaining the district seems to have influenced the presence of exotic plants, with over 30 being identified in this area.

Continuing the present situation of allowing the encroachment of woody vegetation and the presence of exotic plants would result in a continued inaccurate presentation of the historical scene and confusion for visitors. It would also be more difficult to control exotic plants and wildland fire. Native wildlife will continue to find a less natural habitat situation. Again, these impacts are local and moderate. There will be a slight incremental negative impact to the surface hydrology, as the heavier vegetation contributes to evapotranspiration of available groundwater, reducing that which is available as surface creek flow.

Adaptive use of the historic structures as exhibit space or offices may be inviting the presence of rodents, requiring intensive pest management actions to protect human health and safety. Maintenance of a lawn surrounding the Ranch House requires regular applications of water from the shallow Faraway well. The connection between this source of water and surface water is not well understood, but there is concern that any administrative use may be reducing what is available for plants and animals.

Any attempts to maintain the Faraway landscape according to its historical form could mean compromises to the natural features. The overall impacts to the natural systems in the Faraway area are generally negative but are very localized. They would continue indefinitely.

The existence of the maintenance storage area provides a major impact in a very small area. The heavy equipment greatly compacts soil. Natural erosion and runoff have been altered. Waste wood, metal, PVC pipe, stone, cardboard, trash, and gravel are stored here, providing potential contamination sources, which could eventually reach the floodplain or the aquifer. Approximately one-quarter of the site and one storage structure are actually within the wilderness area. Use of the area generates occasional but loud noise that would disturb wildlife and the natural quiet.

Present and continued use of the visitor center with its exhibits, book sales, and administrative offices provides moderate impacts to the natural ecosystem in a very limited area, resulting in soil compaction and modified erosion and runoff. There is some compaction along the trail that connects to the campground and Faraway Ranch. With the presence of the rest room and public phone and the need to provide nighttime illumination, there are some negative but limited impacts on nocturnal wildlife. There is an occasional need to relocate rattlesnakes to enhance public safety.

The presence of the visitor center generates noise by attracting and channeling human activities into this area. The presence of vehicle traffic, picnicking, visitor activities, and administrative use all serve to disturb the natural quiet. Human use and occupation of the area requires regular and considerable water consumption. There is an unknown relationship between well drawdown and connection with surface water availability. Any reduction in available water flow during drought periods could be critical or fatal to certain species of wildlife or aquatic insects.

Because of the presence of development facilities (ten residences, a maintenance complex, offices, aboveground gas tank, parking lot, supporting utilities, and the administrative road), there is moderate impact to the natural ecosystem in a very localized area. Construction of these facilities on a sloping area required some ground modifications. Rainfall is channeled from the road and building runoff, with alteration from its previous natural flow. Nighttime lighting attracts insects and bats. Human food (residences) serves to attract other wildlife. Human activity also negatively impacts the natural quiet.

The superintendent's house, swimming pool, heavy equipment storage, water well, and one-half mile long gravel road provide considerable activity in this floodplain area. The overall effects are negative for wildlife, natural water runoff, soil compaction, and natural quiet, but they are limited in area. Continued presence of these developments in this area precludes the return of natural wildfire into this part of Bonita Canyon. Many of these impacts are similar to those described for the housing and maintenance area.

At the campground, there are 25 campsites, 2 CCC-era buildings (a public rest room and staff residence), public telephone, public water faucets, rustic fencing to control visitor movement, paved road, bridge, group site, amphitheater, entrance information kiosk, septic system and leach field, and two volunteer trailer pads with hookups. The presence of the campground has negative overall effects on the natural ecosystem, but in a very localized area. Soil compaction, accelerated erosion, wildlife disruption, vegetation manipulation, and generation of noise, which disturbs the natural quiet are some of the effects. Water use, generation of human waste and trash, creation of social trails, the

presence of domestic animals, cooking, evening campfire programs, and vehicle traffic all contribute negatively.

Also, the campground is at the intersection of Bonita and Surprise Canyons, creating a potential human safety problem during heavy rainfalls. Additional education of monument staff and campground visitors is required to lower the flash flood risk to human life and property because of the location of campsites and the evacuation routes within the floodplain. The presence of the campground also eliminates the opportunity for lightning fires to progress naturally through the area. Occasional wildlife and visitor conflicts require relocation of the animals.

The 100-acre King of Lead Mine parcel of five patented mines is sandwiched between monument and Coronado National Forest land, with a 1-mile gravel road through the monument. The monument is required to maintain this steep road in an appropriate condition to provide the owner access to the King of Lead Mine. The mine has approximately five adits of varying lengths, water tanks, berms, and other equipment. Preliminary tests show that there is some contamination present in the soil that would require cleanup if NPS acquired the property. The Red Horse Mine is also just within the boundary. This property contains an old shack, two adits, and various mining paraphernalia. It is the NPS intention to remove at least the shack, which has been determined to have no relevant historic connection.

The continued presence of the King of Lead and Red Horse Mines has a moderate negative effect on the natural ecosystem.

The road into the Sugarloaf parking area, picnic site, and trail to the lookout creates the same negative impacts as those described for the park road, picnic area, and wilderness trails. These include: soil compaction, erosion, alteration of natural rainfall sheetflow, wildlife disruption, trash disposal,

development of social trails, and noise that disturbs the natural quiet. Presence of the lookout, trails, and exhibit building require periodic preservation maintenance actions that add to the human presence. The three vault toilets require regular janitorial, pumping, and maintenance visits. Staffing of the lookout as part of the fire management program also brings a regular human presence that requires food, human waste, and nighttime operation. Use of this area is expected to continue into the foreseeable future.

The 19 miles of trail from seven different trailheads in the wilderness area require periodic trail maintenance and erosion control. There is localized soil compaction, interruption of natural water flow, and disruption to wildlife caused by visitor foot traffic. These are minor and localized negative impacts, but necessary if visitors are to be allowed to hike the wilderness on foot. Use of horses by visitors also compacts the soil and might serve as a vehicle for introducing exotic plants, especially into areas protected from most other sources of exotic plant introduction by distance, elevation, and access. Horse use also negatively affects migrating animals, such as neotropical migratory birds, and animals with large home ranges, such as mountain lions. Use of the wilderness by researchers doing permitted studies is disruptive to wildlife in the short term, because these studies could involve observation and capture of target species and could involve areas that are removed from normal visitor hiking areas. Studies could also involve consumptive use and harvesting of plants and other physical resources.

ECONOMIC CONTRIBUTION TO GATEWAY COMMUNITIES

Affected Environment

Chiricahua NM is in Cochise County in the southeast corner of Arizona. It is at the northern end of the Chiricahua Mountains,

37 miles southeast of Willcox, Arizona, and 124 miles southeast of Tucson. A range of services (including lodging, gas, and food) are located in Willcox, which is connected to I-10, a major transportation interstate.

Park tourism, park-related federal expenditures, and expenditures by other nonlocal parties on park-related activities and projects contribute to the local economy. Total combined sales from park operating expenditures is about \$6 million annually. Total tax revenue being gained from park-related expenditures is about \$512,000 annually. Operations and use of the park results in about 256 jobs in the area.

Impacts of Proposed GMP—Alternative A

The proposal would provide a minor short-term increase the economic contribution to the local community. There are two types of increase estimated, short-term (from capital investment) and long-term (from an increase in the annual operating budget). In the short term, it is estimated that the expenditure of about \$6,000,000 would create a one-time benefit to the economy of \$10.5 million in total combined sales, approximately \$1 million in tax revenue, and create 445 jobs for the life of the projects. This would not necessarily occur in the local economy. In the long term, increases in the operational budget for the park of \$233,500 would create a benefit to the economy of \$419,000 in total combined sales, approximately \$35,000 in tax revenue, and create 18 jobs in the local economy.

For every 1,000 additional visits, approximately \$45,000 in combined sales is added to the local economy along with \$3,800 in increased tax revenue. Two additional jobs are also created. For every \$100,000 expended by the park, approximately \$180,000 in combined sales is added to the local economy along with \$15,000 in increased tax revenue. Eight additional jobs are also created.

Impacts of Alternative B

Alternative B would provide a minor short-term increase in the economic contribution to the local community. There are two types of increase estimated, short-term (from capital investment) and long-term (from an increase in the annual operating budget). In the short term, it is estimated that the expenditure of about \$4,000,000 would create a one-time benefit to the economy of \$6.9 million in total combined sales, approximately \$0.7 million in tax revenue, and create 294 jobs for the life of the projects. This would not necessarily occur in the local economy. In the long term, increases in operational budget for the park of \$186,500 would create a benefit to the economy of \$335,000 in total combined sales, approximately \$28,000 in tax revenue, and create 14 jobs in the local economy.

For every 1,000 additional visits, approximately \$45,000 in combined sales is added to the local economy along with \$3,800 in increased tax revenue. Two additional jobs are also created. For every \$100,000 expended by the park, approximately \$180,000 in combined sales is added to the local economy along with \$15,000 in increased tax revenue. Eight additional jobs are also created.

Impacts of the No-Action Alternative

The no-action alternative would continue to provide income to the local economy. Total combined sales, sales benefits from park tourism, jobs created, and total tax revenue being gained from park-related activities would be the same as described above.

ADJACENT LANDOWNERS

Affected Environment

Chiricahua NM is accessible from Willcox via U.S. 186 and from the southwest via Arizona 181. A 27-mile county road through Coronado National Forest, 14 miles of which

is paved, provides access from U.S. 80 in New Mexico.

The monument is surrounded on the south, east, and north by the Coronado National Forest. Limited grazing occurs on these lands through grazing allotments administered by USFS. Private landowners adjoin the entire west boundary. Some of the private parcels are used for residential purposes, and one is an established bed and breakfast commercial operation. The remaining parcels are used for cattle grazing. The northeast corner of the park contains a 100-acre parcel of private land known as the King of Lead Mine. Two of the 100 acres are within the established boundary. The remaining 98 acres are surrounded by park boundary and USFS.

Impacts of Proposed GMP—Alternative A

The proposed GMP would ensure preservation and protection of the Bonita Creek watershed by eliminating the threat of future mining activities and development.

Working with USFS and adjacent landowners to provide additional camping facilities outside the current boundary would provide adequate facilities to accommodate the overflow camping situation. This would reduce the impacts to sensitive riparian areas on USFS lands. If the existing campground is damaged in future flooding or, as additional camping facilities are developed outside the monument by private parties, the monument staff would consider closing all or part of the Bonita Creek campground on a seasonal or entire basis or converting it to day use picnicking only.

Impacts of Alternative B

Impacts on adjacent lands would be the same as for Alternative A, although to a lesser extent.

Impacts of the No-Action Alternative

Impacts of the no-action alternative would not substantially change from existing conditions. Potential adverse impacts to the Bonita Creek

watershed could result if the currently inactive King of Lead Mine were to resume operations. This parcel is also subject to adverse development if sold to private developing interests.

The lack of a sewage dumping station would result in the continuance of inappropriate dumping of raw sewage onto the state highway right-of-way and private property.

The lack of overflow camping facilities would result in the continued practice of displacing camping to sensitive riparian areas on adjacent USFS lands. The overflow camping problem also affects private landowners adjacent to the park.

OPERATIONAL EFFICIENCIES

Affected Environment

See description in under Issues.

Impacts of Proposed GMP—Alternative A

The construction of a new facility outside the existing boundary would result in the consolidation of all administrative functions. Considerable savings would be realized in terms of human and fiscal resources. Historic structures would be used more appropriately. New maintenance facilities would prevent the inappropriate encroachment into the designated wilderness area. Tremendous savings would be realized by having adequate storage facilities to safeguard equipment, supplies, and materials.

Visitors would be more adequately served with a visitor facility large enough to meet the needs. Monument staff and visitors would be better informed concerning the immediate and potential flash flood risk in the monument, particularly in the Bonita Creek campground. An improved water distribution system would enhance employee and visitor safety by ensuring a dependable water supply exists.

Impacts of Alternative B

Impacts on operational efficiency would be the same as for Alternative A, although to a lesser extent. Visitors would not be adequately served. Monument staff would have to employ different methods and greater use of personal services to serve visitors because of the lack of an adequate visitor orientation facility.

Impacts of the No-Action Alternative

The effects of the no-action alternative would be a continuation of the present situation. Currently division chiefs and other employees occupy historic structures at various locations separate from the headquarters complex. Many of these structures are inadequate in size, lack heating and air conditioning, have no reasonable access to modern office equipment, and present significant exposure to rodent-borne diseases such as *hantavirus*. An inordinate amount of time is wasted because of travel time and distance to the headquarters facility for telefax and copy machine use. Communication links with employees working in outlying structures are difficult to maintain.

The maintenance facility occupies small structures constructed in the 1930s. The facilities are lacking in size, functionality, and location. The modern-day equipment cannot be adequately safeguarded and used in the current facilities. Expensive equipment and supplies are exposed to the elements because of inadequate space. Outdoor storage space encroaches upon the designated wilderness area.

The current visitor center is too small to meet the needs of increasing visitation. Space is not available to conduct environmental education programs.

The existing water distribution system is inadequate to meet current public health service standards. Multiple dead end lines result in stagnant and potentially dangerous

water supply. The system is inadequate to meet fire protection needs.

The current sewage disposal system has exceeded its maximum design capability, resulting in excessive amounts of raw sewage entering the shallow underground water aquifer.

SHORT-TERM AND LONG-TERM EFFECTS OF THE PROPOSAL

Compared with a land base of more than 3,000 in the park, land-use consumption would decrease by about 2 acres with the removal of the existing visitor orientation function from inside to outside the park boundary. The proposal would improve long-term management, provide better protection to the environment, and enhance visitor experience.

Interpretation and visitor orientation would be more effective. Also, managers would be more efficient and effective in carrying out long-term management goals through the use of broadly defined prescriptions for land management contained in the proposal.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES RELATED TO THE PROPOSAL

Some archeological sites are subject to irreversible damage because of vandalism and loss of contextual relationships between objects that compromise a site. When objects are removed from a site, or moved within a site, this irreversible damage affects the potential for future archeological research to fully derive all scientific knowledge from that particular site.

Any increased visitation would tend to increase the amount of damage to archeological sites and the loss of artifacts no matter what protective measures are put in place or what messages are provided through interpretation and education.

CUMULATIVE EFFECTS OF THE PROPOSAL

The impact analysis of the proposed GMP looks at all actions in the past, present, and

reasonably foreseeable future that would affect Chiricahua NM and its visitors. No cumulative effects or elements of precedence were identified by any of the alternatives considered.

CONSULTATION/COORDINATION

HISTORY OF PUBLIC INVOLVEMENT/AGENCIES CONSULTED

As described in the Purpose and Need, Planning Process section, scoping was conducted twice for the Chiricahua GMP. The Notice of Intent to publish an Environmental Impact Statement was published in June of 1999. This Draft Environmental Impact Statement will be available for public review for a minimum of 60 days.

The following agencies were contacted during preparation of the plan:

US Fish and Wildlife Service
Arizona State Historic Preservation Office

PLANNING TEAM

National Park Service

Alan Cox, *Superintendent, Chiricahua NM and Fort Bowie NHS*—BS in Criminal Justice from Sul Ross State University, Alpine Texas. 24 years NPS at 7 different National Park Units. Responsible for overall process, adjacent land owners, operational efficiency, purpose and need, alternatives, economic contributions, and final recommendation to Regional Director

Kathy M. Davis, *Resources Manager, Southern Arizona Office*—Masters of Forestry from University of Montana, 20 years NPS, 3 years USFS, 5 years CSIRO in Australia. Responsible for coordination, purpose and need, and list of recipients.

Don Goldman, *Planner, Intermountain SO-Santa Fe*—B.A.A.S. Geography, 36 years NPS, 5 years University of California at Los Angeles (UCLA). Responsible for purpose and need, alternatives, consultation/coordination, cumulative effects, land appendices.

Lori Kinser, *Visual Information Specialist, Intermountain SO-Denver*—24 years as a primary provider of graphic support. Responsible for the production of Graphics.

Larry Ludwig, *Unit Manager, Fort Bowie NHS*—10 years with National Park Service, B.S. History, Arizona State University. Responsible for visitor experience, archeological sections.

Christopher Marvel, *Lead Planner, Intermountain SO-Denver*—BLA/BS NYS College of Environmental Science and Forestry/Syracuse University, 21 years Government (10 USFS, 11 Year NPS). Responsible for coordination, purpose and need, alternatives, tables, contract coordination, and economic contributions.

Chris Turk, *Regional Environmental Quality Officer, Intermountain SO-Denver*—B.A.A.S. Biological Sciences, 21 years NPS, 5 years U DE College of Marine Studies. Responsible for coordination, purpose and need, and alternatives.

Alan Whalon, *Resource Manager, Chiricahua NM*—MFS, Natural Resource Management (Yale); Private Consulting Forester, Currently Chief, Resources Management & Education (Chiricahua NM & Fort Bowie NHS); also worked with NEPA and NHPA process at Acadia NP, Chaco Culture NHP, Big Cypress National Preserve, Hovenweep NM, Assateague Island NS, Hampton NHS. Responsible for Long-Term Health of Natural Systems.

John Reber, *Physical Scientist, Air and Water Resource Coordinator for Intermountain Support Office, National Park Service*. B.S. Biology, M.S. Biology/Environmental Monitoring Univ. of Hartford. 8 years NPS including 7 years resource planning. 9 years Technical Services Director and Quality Assurance Manager in private concrete and

construction materials firms. 7 years Environmental Analyst in private engineering and environmental consulting firm. Responsible for Statement of Findings and write-up on wetlands and flooding issues throughout the document.

Jill Cowley, Historical Landscape Architect and Manager of the Santa Fe Office Cultural Landscapes program, National Park Service. Masters of Landscape Architecture from Utah State University. 11 years National Park Service (cultural landscapes and park planning), 1 year Forest Service (site planning/design), 1/2 year visiting lecturer at Charles Sturt University, Australia. Responsible for Cultural Landscapes.

Volunteers in Parks

Kenneth Bennett, Historical Architect, retired National Park Service

Kane Orr, Student, Mesa Community College/Arizona State University

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Bryant Smith, U.S. Forest Service

Lynn Saline, Bureau of Land Management

Dan Fischer, Park Neighbor

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Eddie Browning, Executive Director, Willcox Chamber of Agriculture and Commerce

William T. Civish, Field Office Manager, Bureau of Land Management

Mayor Marlin Easthouse, Mayor of Willcox, AZ

Dan Fischer, Park Neighbor

Jim Garrison, AZ State Historic Preservation Office

Bill Halvorson, USGS/ BRD, AZ CPSU Station Leader

Douglas Hardy, District Ranger, Douglas Ranger District, Coronado National Forest

Don Higgins, Park Neighbor

Representative Jim Kolbe, House of Representatives

Senator Jim McCain, United States Senator

John McGee, Forest Supervisor, Coronado National Forest

Jim Riggs, Park Neighbor

Lynn Saline, Bureau of Land Management

Dave Simon, Southwest Regional Director, National Parks and Conservation Association

Bryant Smith, U.S. Forest Service

George Teague, Director, Western Archeological Center

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- 1999 *Transportation Study, Chiricahua National Monument*. Prepared by Parson Brinkerhoff, Denver Service Center, Denver, Colorado.

ST. CLAIR, LARRY L., KIM T. ANDERSON, AND CLAYTON C. NEWBERRY

- "Lichen Biomonitoring Program and Air Quality Baseline in Chiricahua National Monument and Fort Bowie National Historic Site," final report submitted to NPS.

UNIVERSITY OF ARIZONA

- 1990 "Small Mammal Inventory of Chiricahua National Monument, Cochise County, Arizona," by Douglas K. Duncan. Technical Report No. 30.
- 1997 "Faraway Ranch, Chiricahua NM, Cultural Landscapes Inventory, Level 2," by Carla Singer, Michal Tincup, and Steven White. Department of Landscape Architecture. Completed under cooperative agreement with National Park Service, Santa Fe, New Mexico.

APPENDIX 1: LEGISLATION

Chiricahua National Monument

Establishment: Proclamation (No. 1692) of April 18, 1924.....	Page 154
Enlarging the area: Proclamation (No. 2288) of June 10, 1938.....	154

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA

A PROCLAMATION

[No. 1692—Apr. 18, 1924—43 Stat. 1946]

WHEREAS, certain natural formations, known as "The Pinnacles", within the Coronado National Forest, in the State of Arizona, are of scientific interest, and it appears that the public interests will be promoted by reserving as much land as may be necessary for the proper protection thereof, as a National Monument.

NOW, THEREFORE, I, Calvin Coolidge, President of the United States of America, by virtue of the power in me vested by section two of the Act of Congress approved June eight, nineteen hundred and six, entitled, "An Act for the preservation of American antiquities", do proclaim that there are hereby reserved from all forms of appropriation under the public land laws, subject to all prior valid adverse claims, and set apart as a National Monument, the following described tracts of land in the State of Arizona:

W $\frac{1}{2}$ Sections 19, 30 and 31, Township 16 South, Range 30 East, G. & S. R. M.; Sections 24, 25 and 36, Township 16 South, Range 29 $\frac{1}{2}$ East, G. & S. R. M.; S $\frac{1}{2}$ Section 24, unsurveyed; Section 35, unsurveyed; Section 36, unsurveyed; Township 16 South, Range 29 East, G. & S. R. M.

The reservation made by this proclamation is not intended to prevent the use of the lands for National Forest purposes under the proclamation establishing the Coronado National Forest, and the two reservations shall both be effective on the land withdrawn but the National Monument hereby established shall be the dominant reservation and any use of the land which interferes with its preservation or protection as a National Monument is hereby forbidden.

Warning is hereby given to all unauthorized persons not to appropriate, injure, deface, remove or destroy any feature of this National Monument, or to locate or settle on any of the lands reserved by this proclamation.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the United States to be affixed.

DONE at the City of Washington this 18 day of April, in the year of our Lord one thousand nine hundred and twenty-four, and of the [SEAL] Independence of the United States of America the one hundred and forty-eighth.

CALVIN COOLIDGE.

By the President:

CHARLES E. HUGHES,
Secretary of State.

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA

A PROCLAMATION

[No. 2288—June 10, 1938—52 Stat. 1551]

WHEREAS it appears that the hereinafter-described lands comprising a part of the Coronado National Forest, in the State of Arizona, are adjacent to

VIII. NATIONAL MONUMENTS—CHIRICAHUA

the Chiricahua National Monument, established by proclamation dated April 18, 1924, and are required for the proper care and management of the objects of historic and scientific interest being protected by the said monument:

NOW, THEREFORE, I, Franklin D. Roosevelt, President of the United States of America, under and by virtue of the authority vested in me by section 1 of the act of June 4, 1897, 30 Stat. 11, 34, 36 (U. S. C., title 16, sec. 473), and section 2 of the act of June 8, 1906, ch. 3060, 34 Stat. 225 (U. S. C., title 16, sec. 431), do proclaim that, subject to all valid existing rights, the following-described lands in the State of Arizona are hereby excluded from the said Coronado National Forest and are hereby added to and made a part of the said Chiricahua National Monument:

GILA AND SALT RIVER MERIDIAN—ARIZONA

- T. 16 S., R. 29 E., sec. 22, all,
sec. 23, all, partly unsurveyed,
sec. 24, $N\frac{1}{2}$, unsurveyed,
sec. 25, all, unsurveyed,
sec. 26, all,
sec. 27, $N\frac{1}{2}$;
- T. 17 S., R. 29 E., sec. 1, $N\frac{1}{2}$, $N\frac{1}{2}$ SE $\frac{1}{4}$, NE $\frac{1}{4}$ SW $\frac{1}{4}$,
sec. 2, $N\frac{1}{2}$;
- T. 16 S., R. 29 $\frac{1}{2}$ E., sec. 13, S $\frac{1}{2}$;
- T. 17 S., R. 29 $\frac{1}{2}$ E., sec. 1, $N\frac{1}{2}$, unsurveyed;
- T. 16 S., R. 30 E., sec. 18, S $\frac{1}{2}$,
sec. 19, E $\frac{1}{2}$,
sec. 30, E $\frac{1}{2}$,
sec. 31, E $\frac{1}{2}$,
sec. 32, W $\frac{1}{2}$ W $\frac{1}{2}$;
- T. 17 S., R. 30 E., sec. 5, W $\frac{1}{2}$ NW $\frac{1}{4}$, unsurveyed,
sec. 6, $N\frac{1}{2}$, unsurveyed;

containing approximately 6,407 acres.

Warning is hereby expressly given to all unauthorized persons not to appropriate, injure, destroy, or remove any feature of this monument and not to locate or settle upon any of the lands thereof.

The Director of the National Park Service, under the direction of the Secretary of the Interior, shall have the supervision, management, and control of the monument as provided in the act of Congress entitled "An act to establish a National Park Service, and for other purposes," approved August 25, 1916, 39 Stat. 535 (U. S. C., title 16, secs. 1 and 2), and acts supplementary thereto or amendatory thereof.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the United States to be affixed.

DONE at the City of Washington this tenth day of June in the year of our Lord nineteen hundred and thirty-eight, and of the Independence
[SEAL] of the United States of America the one hundred and sixty-second.

FRANKLIN D. ROOSEVELT.

By the President:
CORDELL HULL,
Secretary of State.

APPENDIX 2: FUTURE PLANS AND STUDIES NEEDED

Future plans and studies needed for Chiricahua include:

- Archeological survey
- Biological surveys
- Campground operating plan
- Collections management plan
- Comprehensive interpretive plan
- Cultural landscape inventory for CCC landscape areas
- Cultural landscape reports for Faraway Ranch and CCC landscape areas
- Engineering design concept report on Bonita Canyon Road
- Entire park archeological inventory
- Estimated development costs
- Ethnographic overview and assessment
- Fire management plan
- Historic resources study
- Historic structures preservation guide
- Inventory of mammals, birds, and plants
- Park administrative history
- Traffic conditions study (one week, spring)
- Vegetation management plan
- Viewshed analysis
- Transportation study (currently under contract with Parsons Brinkerhoff to address economic feasibility and other transportation Issues)

APPENDIX 3: DRAFT STATEMENT OF FINDINGS

FOR
EXECUTIVE ORDER 11988 "FLOODPLAIN MANAGEMENT"

Bonita Creek Campground
General Management Plan, Draft Environmental Impact Statement
Chiricahua National Monument
Arizona

Recommended: _____

Superintendent, Chiricahua National Monument *Date*

Concurred: _____

Chief, Water Resources Division *Date*

Approved: _____

Director, Intermountain Region *Date*

In accordance with Executive Order 11988 (Floodplain Management) and National Park Service guidelines for implementing the order, the National Park Service (NPS) has evaluated flooding hazards for the campground at Chiricahua National Monument and has prepared this statement of findings (SOF). As an integral part of the effort to develop a general management plan (GMP) for the monument, the SOF describes the flood hazard, alternatives, impacts, mitigation, and informed decisions for the continued use of the campground. Additional detail regarding the monument, campground, flooding history, and future plans may be found in the GMP.

INTRODUCTION

The Civilian Conservation Corps originally constructed the Bonita Creek campground in the 1930s. It contains historically significant structures from that era, including rest rooms and one staff housing unit. The campground amphitheater contributes significantly to the park interpretive program.

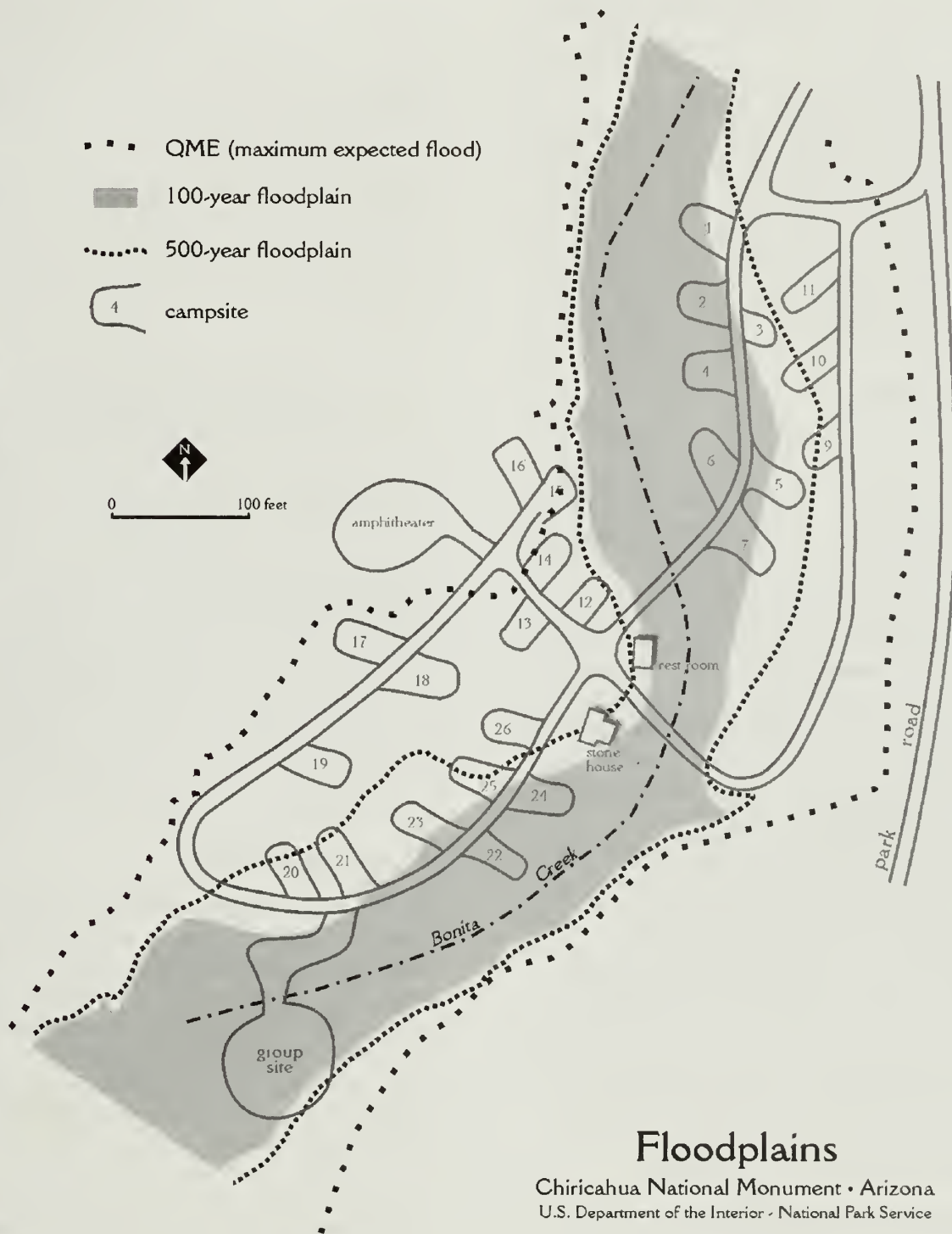
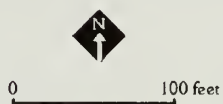
The park will continue to operate the existing 25-site campground at Chiricahua with an operational plan (campground operation plan) that significantly lowers the threat to life and property within the campground area. The monument will develop this plan, regularly educate staff and visitors in its detail, and periodically review it with any additional weather or flooding information that becomes available. Chiricahua NM is nestled into the northwestern Chiricahua Mountains bound on the east by the Coronado National Forest and the west by Sonoran and Chihuahuan Deserts. The monument contains 11,985 acres of very

steeply eroded mountain slopes, terrain sculpted by water, wind, and ice for more than 25 million years. The campground lies on gentle terrain alongside Bonita Canyon Drive and astride the seasonal Bonita Creek (see floodplain map). Flooding in the area is responsive to the steep and rocky terrain and the intense thunderstorms common during the monsoon period in Arizona from July through September. Bonita Creek, and the neighboring Rhyolite Creek, can rise quickly in response to intense rains, and flooding can be further intensified by ground saturation in the watersheds from previous rainfall.

USE OF THE FLOODPLAIN

The only paved road for visitors in the monument winds along Bonita Creek and the combined Bonita and Rhyolite Creeks. The road services and connects the visitor center, historic structures, campground, and staff housing, filling most all of the available gently sloped terrain in the monument. Most of the campground is within the 100-year and 500-year floodplain, and all of it is within the maximum expected flood event boundaries. Use of this delineated floodplain area subject to flash flooding for a campground is considered a class III action and requires notification, warning and development of mitigation for the flooding threat. The campground lies in the only available terrain for such use within the monument. No additional flat or gently sloped areas remain in the park that could be suitably developed with water and sewer utilities, without serious impacts to natural or cultural resources and wilderness. All other gentle terrain on site is already occupied with visitor facilities, historic structures, or similar or worse flooding threats.

- ■ ■ QME (maximum expected flood)
- 100-year floodplain
- 500-year floodplain
- 4 campsite



Floodplains

Chiricahua National Monument • Arizona
U.S. Department of the Interior • National Park Service

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The available camping sites within the monument do not meet the visitors' demand for sites with trees and in close proximity to water. Currently, there are insufficient numbers of alternative camping sites available outside of the monument. Limited camping is available nearby in the Coronado National Forest. Additional camping areas outside the monument could be developed by a private party at some time in the future, but these potential locations appear to be in open areas, unprotected from wind or sun, and thus undesirable for most campers.

FLOOD RISK

The campground is entirely within the maximum estimated flood for Bonita Creek, with most of the campsites affected by the 500-year and 100-year flood flows (eight sites are within the 100-year floodplain).

During the August 1993 flood event, the discharge in Bonita Creek was approximately 350 cubic feet per second (cfs) upstream of the campground. After the input from Surprise Canyon's watershed, midpoint in the campground, Bonita Creek approached 600 cfs. Because of a frequently blocked culvert, the tributary from Surprise Canyon overtopped the park road and destroyed one campsite in its path. A complete collapse of the park road embankment would have directly threatened one-third of the campground with a short-lived 5 to 10-foot wall of water. No campers were injured in that flood event, although substantial damage occurred in the path of Rhyolite Creek during the same event. The potential breakthrough of the main road embankment spanning the Surprise Canyon tributary during flooding could cause major erosion damage.

Because the watershed area is so small, the time required for the flooding to occur on Bonita Creek could be short, but there are warning signs to consider. Flooding would have to occur during an intense rainstorm, possibly preceded by ground saturating storms and most likely during the months of

July through September. Because the watershed is so small, there also would be some local awareness of flooding potential because intense rainfall in the watershed would likely be occurring at the campground and visitor center. Adequate warning through the use of automated flood stage alarms or rainfall gauges has been evaluated and found impractical because of the speed at which the flooding could occur, the cost of installation and maintenance of such a system, and the false sense of security such a system could instill.

The best opportunity for evacuation of the campground currently lies primarily with early warning. During a flooding event, the options for some campers are limited. Access to higher ground is readily available to more than half of the sites, but campers would have to evacuate by means other than the campground access roads they arrived by. Because of the low elevation of the access roads, the complex confluence of Bonita Creek and the Surprise Canyon tributary, and the chaotic nature of flooding in an unknown and possibly dark campground, it is expected that campers would require assistance to safely avoid the flood waters.

PROPOSED ACTION

The NPS will continue to operate the Bonita Creek campground in a safe and prudent manner by selective closures and flood threat awareness training for staff and visitors to Chiricahua NM. The selective closures of the campground will derive from use of the campground operation plan and be based upon seasonal and predicted weather conditions at the monument. Closures will occur on a day-by-day basis according to immediate observations by monument staff, weather forecasts of particular intensity, and modified by any presaturation of the watershed and the season of the year. Monument staff will budget or request funding for replacement of the culvert carrying the Surprise Canyon tributary

beneath the main park road close to the campground.

The NPS will develop a campground operational plan to address flooding threats:

- Develop a decision tree for monument staff to minimize the threat to life by clear planning choices
- Closure conditions
- Seasonal, watershed saturation, and storm event priorities
- Notification protocols for monument staff, visitors, and campers
- Train staff, campground hosts, and volunteers in the implementation of the plan
- Prepare informational and warning signs, brochures
- Establish formal notification/warning procedures between the monument and the National Weather Service
- Heightened awareness periods during the monsoon rain months of July, August, and September, especially when the watershed is saturated by previous rains
- Preemptive night camping closure of the campground using the decision tree
- Formalization of evacuation routes and mobilization sites for rescue
- Review and revise the plan elements every two to three years

This proposed action does not represent a new or expanded impact upon natural resource, cultural resource, or park infrastructure floodplain values in the monument. It does represent an informed decision concerning the continuation of a risk to human life that is minimized by the mitigation contained in the campground operation plan. The risk to human life in the campground cannot be eliminated entirely.

If the campground is damaged in future flooding or, as additional camping facilities are developed outside the monument by private parties, the monument staff will consider closing all or part of the Bonita Creek campground on a seasonal or entire

basis, or converting it to day use picnicking only.

SUMMARY

The NPS will continue to operate the existing 25-site campground in the floodplain at Chiricahua National Monument with selective closure options described in an operational plan (campground operation plan) that significantly lowers the threat to life and property within the campground area. The monument will develop this plan, regularly educate staff and visitors in its detail, and periodically review it with any additional relative weather or flooding information that becomes available.

REFERENCES

National Park Service

- 1993 Floodplain Management Guideline, Washington Office, Washington, D.C.
- 1994 "Trip Report Memorandum, Hydrologic Investigations at Chiricahua National Monument, January 4, 1994," by M. Martin and G. Smillie, Water Resources Division, Fort Collins, Colorado.
- 1997 "Trip Report Memorandum, Hydrologic Investigations at Chiricahua National Monument and Fort Bowie National Historic Site, June 23, 1997," by M. Martin, Water Resources Division, Fort Collins, Colorado.
- 1997 "Trip Report Memorandum, Water Resource Assistance at Chiricahua National Monument, October 7, 1997," by D. Sharrow, Water Resources Division, Fort Collins, Colorado.

Clemson University



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